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Address.

PROGRESS IN PEDIATRICS.*

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LOUISVILLE, KY.

The Constitution of the Association provides that the chairman of each Section shall deliver an address at its first session, which shall be a review of the work done in that special field during the year past, and make any recommendations he may deem best in regard to the work of the Section.

All of the special, and many of the general journals have been teeming with articles of great interest to the pediatrist, and it is no wonder now that this Section has grown to be one of the most dignified and important Sections of the great AMERICAN MEDICAL ASSOCIATION. Its programs are always replete with live subjects by up-to-date men, and its meetings attract many who are unaffiliated with other Sections, the surgeon, the specialist and the general practitioner.

From the time when Dr. Wm. Shippen,[1] the first to give a lecture on diseases of children in this country, delivered his eleven lectures on midwifery in 1762, concluding them with particular lectures on diseases of women and children, with special directions concerning the diet of each, and methods of choosing and making good nurses, to the present time, the advance in the teaching of pediatrics has been steady. How satisfactory it is to look back over the history of the years gone by and see the gradual increase in the recognition given pediatrics in literature, in schools, and in general and special practice! Only very lately the Jacobi ward in connection with Roosevelt Hospital has been established by endowment. This is to be devoted entirely to the clinical study of pediatrics under the pioneer teacher, Jacobi. In this the ideal has been reached, and we trust the example will soon be followed in other great teaching centers.

The wealth of material offered you on our excellent program is the outcome of the zeal and great interest of our efficient secretary, to whom our thanks are due. It has often occurred to me that, if our Section would adopt the policy of the Section on Neurology, in having a permanent Secretary, the interest of its members, individually and collectively, could much better be served than by yearly changing, as is the present custom. On the secretary largely depends the success of the meeting. When retained permanently he becomes acquainted with those who will attend the Section meetings, and those who are desirable contributors; he knows how long a program should be and the proportion of those promising papers who will attend. This suggestion is offered, believing its adoption will best subserve the interests of the Section.

One of the best methods of arousing interest in the Section is to have published accurate stenographic reports of the discussions, and we feel there will be no complaints arise from this meeting.

It is to be hoped that the members will early subscribe for the requisite number of Transactions of this meeting, to insure the publication of a volume. The volume of the Denver meeting was the first, we think, ever issued, at least the first for a number of years, and it is to be hoped that each session in the future will vote its volume, that the list may be unbroken. In this volume should be included a short biographic sketch of the members of the Section who have died during the year; the Secretary, being in touch with the members in the interim between meetings, could act as a committee of one on necrology, making a yearly report.

Just one year ago, June 12, Dr. John A. Larrabee of Louisville died. He was chairman of this Section in 1896, at the Philadelphia meeting, and lay at the point of death during our meeting at Denver. I am told that the telegram of sympathy sent Dr. Larrabee on his deathbed by the Section was deeply appreciated by him. The only other death that has come to my notice is that of Dr. Ella E. Barnes of Birmingham, in July last. She was a regular attendant on the Section meetings and a regular contributor to its program. I would suggest the appointment of a special committee on necrology, to be appointed at this meeting and to make an early report, the same to be published in the volume of Transactions.

Another matter of considerable importance to the Section is the work done by the O'Dwyer Memorial Committee. This committee is composed of representative from all associations that are devoted to the study of pediatrics. At the Denver meeting of the Section, on motion of Dr. Louis Fischer, a committee from the Section was appointed, as follows: Dr. Louis Fischer, New York City, chairman; Dr. F. E. Waxham, Chicago; and Dr. J. P. Crozer Griffith, Philadelphia. The Memorial Committee has held two meetings at the Academy of Medicine, New York, at one of which an executive committee was appointed, consisting of the following members: Dr. Geo. F. Shrady, chairman, Drs. Dillon Brown, L. Emmet Holt, Godfrey Freeman, Robert Abbe and Louis Fischer. Several meetings of this committee have been held, and their unanimous belief is that the memory of the late Dr. O'Dwyer can best be perpetuated by patterning after his own life's work, establishing a fund, the interest of which shall be large enough to stimulate original research in the

*Chairman's Address to the Section on Diseases of Children, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

department of pediatrics. The writer is informed by a member of the executive committee that Dr. O'Dwyer's nature was so averse to ostentation that the suggestion of a portrait, bust or statue would have been very distasteful to him, hence the committee's decision as detailed. An opportunity will be given the members of the Section to hear from Dr. Fischer of the latest developments in the committee's work.

The question of no morning sessions of the Section is an innovation, and was decided on with some hesitancy by your chairman; but it was finally so arranged with unanimous consent and approval of the executive committee. Only afternoon sessions of the Section were originally intended by the ASSOCIATION, but because of the large number of papers offered, as the various Sections grew, two sessions became the custom. But, as the general sessions of the ASSOCIATION must necessarily be prolonged until late in the forenoon, the Section meetings in the forenoon are delayed in opening, always poorly attended, and but little work done; hence it is believed the arrangement for only afternoon sessions will be appreciated.

Because of the large number of papers on the program for each session, it is hoped that the discussions will be prompt. With these suggestions in regard to the Section work, I will proceed, first to the subject of

INFANT FEEDING.

Infant feeding has received much attention from writers in the past year, and it is gratifying to note with what unanimity cow's milk is recognized and advocated as the best substitute for mother's milk. The advances made have been in the direction of an easy and correct method of home modification. It is gratifying that the Walker-Gordon laboratories are being established in all the larger cities, and we hope shortly to have one in Louisville, but even these, where available, are denied many on account of the cost. The method of artificial feeding which will prove most popular with the laity must embody two requisites: cheapness and ease of preparation. On the physician, then, devolves the great burden of educating the people beyond the indiscriminate use of proprietary foods, and the importance of accuracy in the preparation of the food prescribed.

The best food, almost without exception, is cow's milk. Unfortunately, the average physician has not learned the importance of thinking of cow's milk as capable of modification to meet the needs of the child, beyond the vague instructions, perhaps, to add a little water for dilution. He has not learned to think in percentages—the first principle of milk modification—nor that the adaptation of percentages can not be governed by the age of the child, but the individual capacity of the child to digest milk made after certain formulæ. When this has been learned, the best method of modification is to be adopted, and the latest developments have been in the direction of simplifying that process. The ideal method is, of course, by the Walker-Gordon laboratory, when this is available; for the laboratory has come to stay, a prediction made by an esteemed member of the executive committee of this Section, Dr. A. C. Cotton, in his admirable Chairman's Address at the Atlanta meeting of the ASSOCIATION.

When home modification has been decided upon, most excellent results can be had from the method suggested by Dr. Wm. L. Baner[2]. There have been many methods suggested, all embodying some arithmetical calculation, more or less simple, but in the writer's hands none has proven so satisfactory as that of Dr. Baner. Looking to a greater simplifying of home modification, Estraus, a New York merchant, has devised a simple apparatus which he has called the Materna. This consists of a glass graduate on which there are seven panels, with horizontal lines marked on the different sides to indicate the amount of each ingredient of a milk mixture, to produce different percentages of the milk. An objection to the original model made by Dr. J. P. Crozer Griffith[3], was the marking on the various panels certain weeks and months, to indicate the age at which the milk is to be changed to a stronger mixture, which Dr. Griffith urged, placed too much power in the hands of the mother. On his suggestion, a new model will be prepared, which will correct these features, the various formulæ being designated by numbers.

Unfortunately for the physician as well as for the laity and the poor little ones who must feed upon milk, the average milk-supply of cities is markedly inferior, dirty, impure, diluted and entirely unsuitable. Without an adequate municipal control and inspection of the dairy, and general supervision of the handling of the milk, the baby is bound to be the sufferer. For home modification an unvarying standard of milk and cream is the first requisite, a thing most difficult to be obtained in most cities. We hope this question of milk supervision and inspection of dairies will be urged in all municipalities by the doctors, as they are deeply interested.

PNEUMONIA.

The subject of pneumonia has been considered by many authors, and it is surprising, but pleasing, to find what unanimity there is in regard to its treatment. Lobar pneumonia is regarded as a self-limited disease, and we are cautioned that there is danger in over-medication in children so afflicted. We have learned also that cold is always to be preferred as an antipyretic to medicine. Dr. Thomas J. Mays, Philadelphia, has done much to popularize the use of ice in the treatment of pneumonia of all ages, and the writer has seen some most excellent results from its use. The author just referred to has lately given some statistics showing a death-rate, in all ages, with the use of ice, of 4.25 per cent. in 400 reported cases.

The pulse should always be the guide for stimulation, both when to administer the stimulant and how much. The conduct of a case of pneumonia now and that of even ten years ago is very different indeed, due entirely, we believe, to the extended knowledge of the pathology of these morbid conditions. Some, however, even now, advocate the use of flaxseed poultices in pneumonia. Chase[4] reporting 45 cases in which certain methods of treatment at present in disrepute were used. He concludes by saying: "Poultices are of much value, the effect is soothing, pain is diminished, dyspnea relieved and râles lessened."

DIAGNOSIS OF THE EXANTHEMATA.

The importance of an early diagnosis of the exanthemata is generally recognized, unless it be by some of the laity who expose their children purposely to contagions when they are young, in order to have them through with it. Every means at our command should be used for the differentiating of the skin lesions of childhood. As an aid to diagnosing measles, Koplik[5] has described a characteristic change which occurs in the mucous membrane of the mouth, and which Guttman[6] considers the only pathognomonic sign of measles. He describes it as a "very small, round, bluish-white spot, of more or less uniform size and shape, with either a definite area of congestion or a diffuse

red background. They never ulcerate, occur on the mucous membrane of the cheeks and lips, rarely on the tongue, and not on the gums, pharynx, hard or soft palate."

It occurs to the writer that it is a most decidedly bad practice to dub a pathologic condition with an author's name, as has been done in this instance, the condition being referred to as "Koplik's Spots." Rather refer to it, as one author has done, as the "Buccal Eruption in Measles, Koplik," which will be infinitely more easily classified in indices. Far be it from my intention to wish the author who first described this condition shorn of the honor which is his for first mentioning it. We are greatly indebted for his acumen in first noticing it and publishing his observations, but it is the practice of obscuring a good diagnostic sign by not recording it more definitely and in detail, that we protest against.

Another sign described by Bologni is the sensation of rubbing or crackling imparted to the flat hand placed on the abdomen of the patient, whose legs are held fully extended. Dr. A. Koppenorden[7] observed the phenomenon in a number of cases, in an epidemic comprising 300 cases, and describes it as a sensation of crepitation, felt by the fingers, due, he believed, to air in the intestine. It is described as very characteristic when felt. (The writer has not been able to verify this condition in a number of cases.)

DIAGNOSIS OF PERTUSSIS.

Of equal importance is the early diagnosis of pertussis, which Wagner[8] claims is possible quite early, and at once, by bacteriologic examination of the nasal secretions. He states that the secretions of the normal mucous membrane of the nose contain very few bacteria, while in whooping-cough we find a large mass of bacteria of one kind, a natural pure culture of "polbacteria." This bacteria, when full grown, is two to three times as long as it is broad, is rounded and somewhat thickened at its ends, and is divided in the middle. The method of staining used by the author consists of methylene blue in a weak alkaline solution. This stain is then decolorized by a 2 per cent., freshly prepared argonin solution, which reduces the methylene blue in the cells and their nuclei quicker than in the bacteria. To prevent a re-oxidation of the leukomethylene-blue by atmospheric oxygen, the specimen is washed with a concentrated solution of cream of tartar. He mentions the case of Czaplenski, who was taken ill with whooping-cough during the study of the disease, the examination of his nasal and pharyngeal secretions showing the same bacterium he was studying, thus verifying the bacterium as the cause of the disease. This is certainly worthy of further investigation.

PREVENTION OF OPHTHALMIA NEONATORUM.

While we have always believed that there was no danger in the universal employment of the Credé treatment of the eyes of the new-born, the pendulum has swung backward of late, and a number of authors are reporting cases in which the 2 per cent. nitrate of silver solution instilled into the eyes has been the cause of trouble, such as haziness of the cornea or a severe conjunctivitis. Some would limit the use of the silver solution to those cases in which there is a vaginal discharge in the mother, others advocate the universal use of it, despite ill results in a few cases. It would seem that in protargol and argonin we have efficient remedies, as their continued use in the hands of a number of observers has demonstrated clearly that they have a place in therapeutics. Perhaps if one were substituted for the nitrate of silver, a modified Credé treatment, less evil would result and the same good be obtained. It certainly warrants further trial, despite one case reported by Wilson,[9] of ophthalmia developing in eyes in which protargol had been used immediately after birth. Peck[10] recommends the use of protargol and argonin in the treatment of purulent ophthalmia of infants, because of the quicker destruction of the gonococci, the earlier disappearance of secretion, and of inflammatory process, and the restoration of injured corneal and conjunctival tissues. It is used in a 5 per cent. solution. This is a most important subject for the pediatrist, the obstetrician and ophthalmologist as well. The specialist tells us an alarming number of children are totally blind as the result of gonorrheal ophthalmia. We should find a universally safe remedy to be used as a prophylactic, as it is an injustice to the child for it to be left to the physician's judgment as to the necessity of using a mild or more active prophylactic.

DISEASES OF THE MIDDLE EAR.

Dr. Wm. Cheatham,[11] Louisville, has published a paper in which he discussed the special germs found in inflammatory conditions of the middle ear. A brief reference is made to the importance of bacteriologic investigation in suppurative inflammation of the middle ear. The article dealt chiefly, however, with otitis media acuta, due to cold and catarrhal extension from the nasopharynx, in which the pneumobacillus of Friedländer and the diplococcus of Fränkel play an important part. He reports a case of acute suppuration of both middle ears, the left resulting in attic trouble, the pus showing externally, posterior to and on the superior edge of the external auditory canal. In this case there was also an acute primary tonsillitis, in which a pure culture of the diplococcus of Weichselbaum was found, the same organism found in the pus from the ears. The writer has had in his service, at the Masonic Widows' and Orphans' Home, a series of cases, in a short period of time, in which there occurred acute middle-ear trouble, beginning with a chill, rapid rise of temperature, pain and rupture of the drum membrane. One child, a girl, developed a lobar pneumonia before the discharge from the ear had ceased. Cultures from the ear were taken and examined in the bacteriologic laboratory of KentuckyUniversity, by Dr. Florence Brandeis, the pneumococcus, along with other cocci, being found. This brings us to a practical point in these cases: Can the pneumonia in any way be prevented by thorough and early cleansing of the ears of all children who have had a perforation of the drum membrane from acute middle-ear inflammation? Should not all children so afflicted be isolated until discharge from the ear be found free from the diplococcus, tubercle bacillus, etc.? So many cases of acute middle-ear trouble at one time have never been seen before in the history of the institution.

CHILDHOOD IN ITS RELATION TO EPILEPSY.

It was with pleasure we read the paper by Dr. Hugh T. Patrick,[12] Chicago, entitled "The Epileptic Child and His Future." In the paper he ably puts forward the advantages of the colony treatment of epilepties, and we wish it might be placed in the hands of every State legislator in the Union, for careful perusal. The success of the two state institutions in this country, Ohio and New York, has been so apparent that other progressive states must soon fall in line. It behooves the members of this ASSOCIATION to bend every effort to have their legislative bodies investigate this matter and speedily provide like institutions.

TYPHOID FEVER.

Typhoid fever in infants and children presents many characteristics of interest, and much more is known now of it than formerly. A number of reports have been made of cases in cities where there have been epidemics, notably Philadelphia, which holds the palm for the severity and duration of its epidemic, and we have learned much from these observations. Bryant[13], in a recent article, reports a case of typhoid fever in a child nearly two years old, without any lesion in the intestine, though all the clinical phenomena and the Widal reaction were present, the bacillus of Eberth being found on culture from the mesenteric glands. The same author recites fifteen cases from literature, the typhoid bacillus being found in the spleen, liver, kidneys, lungs, mesenteric glands, heart and biliary passages, showing that wherever is the nidus of bacterial growth the toxins will cause symptoms of typhoid fever. Griffith[14] has found typhoid in children in whom the autopsy did not reveal lesions in the intestine. He states this is a characteristic condition in the fetus, but less so in older children. Yet, in this day of enlightenment physicians will still use the so-called Woodbridge treatment of typhoid fever! That typhoid fever may occur in infants under one year of age can not now be disputed, though under ordinary conditions it is infrequently seen.

ANTITOXIN TREATMENT OF DIPHTHERIA.

This address would not be in a measure complete without a reference to the antitoxin treatment of diphtheria. No therapeutic agent in the history of medicine can be compared to it in value. It is quite true that there is nothing quite so uncertain or misleading as statistics; they can be dexterously handled by those for and against a proposition, in order to prove a point, but when one is overwhelmed with the "brute force of figures" there is no room for discussion. In this country as well as abroad there are most gratifying statistics in regard to this remedy. The Chicago Board of Health has just published a remarkable table[16] showing the deaths from diphtheria and croup for the period 1886 to 1895, before the antitoxin was in use. During this time there were 14,175 deaths, a yearly average of 1,417, while in the subsequent three years of antitoxin treatment there were only 2,552 deaths from the same cause, a yearly average of 851. The *Philadelphia Medical Journal*, commenting on this report, says editorially: "Without regard to any change in population there have been absolutely 566 fewer deaths from diphtheria and all croup each year of the last three years than the average number of deaths from the same diseases during the preceding ten years; an actual, not comparative or proportional saving of 1,698 lives from this class of diseases during the antitoxin period." Another striking feature, already impressed on our minds, is in regard to the time of injection of the antitoxin. Of 129 cases treated on the first or second day of the disease, there were no deaths, and only three deaths among 114 treated on the third day, a mortality of 1.23 per cent. in 243 cases. Truly, these figures should make the heart of every physician glad, and encourage him to the prompt use of this valued remedy. It is no experiment now; it is an indisputable fact.

NEW INSTRUMENTS.

Among the new instruments suggested during the year, of special interest to the pediatrist, are the modified intubation tube, from the original by O'Dwyer, and two specially devised tongue-depressors. Dr. H. D. Chapin[17] has suggested one which is small and curved forward, so that when the end has reached the tip of the epiglottis, the base of the tongue would be well controlled. Dr. A. D. Blackader[18] has suggested a somewhat similar one, curved so as to adapt itself exactly to the base of the tongue. On the distal extremity a blunt fork is fixed, of which two branches descend, one on either side of the laryngeal orifice. The instrument serves to control the tongue, pull forward the rima glottidis from the posterior wall of the pharynx, and is of exceptional value for use of the laryngoscopic mirrror. The movements of the child must be controlled by a sheet rolled around its arms and legs, it being carefully held on the knees of an assistant.

EDUCATION OF THE CHILD.

The question of education of the child has been too long neglected by the physician; and when it was considered of old it was only to be at war with the pedagogue. Under the new régime, educators have taken up "Child Study," in which this war bids fair to end. There is a clearer understanding between the educator and the physician; a mutual assistance to a better knowledge of physiologic psychology. It is no longer education at any cost, health being the last consideration; now the teacher realizes she is partly responsible for her charge's health. Unhygienic requirements of education and unsanitary conditions in school life, so long in vogue, are now pointed out, and it is to the physician that the teacher must look for guidance along these lines. It is no longer "take the child out of school," but "remedy the unhygienic conditions which are making the acquirement of education incompatible with health." The educator has met the physician more than half way, and child study, and the new physiologic psychology, now engrossing the minds of educators, are the result. For the newest points in regard to this subject, from the standpoint of the educator, the writer is indebted to Miss Patty Hill, the efficient superintendent of the Louisville Free Kindergarten Association.

Small, accurate manual work, both in the kindergarten and lower grades, has been given up, because productive of nervousness and undue fatigue. Abnormalities of sight and hearing are more closely observed, bad breathers are singled out, and much that is pathologic is corrected by bringing it under medical observation when these troubles are in their incipiency.

Observations are now being made on entirely independent lines, of the waves of vitality and fatigue, that adjustment of the most difficult studies of the day may be made according to the periods of the strength and decline of physical force. In this connection may be mentioned the work of a memeber of this Section, Dr. W. S. Christopher, Chicago, on the ergograph, a delicate instrument for accurately registering the fatigue of a child at various times during the school day. Useless wear and tear, fatigue and irritability are thus avoided.

Washing of school floors with antiseptics, the individual drinking-cup, and every detail looking to the prevention of disease is intelligently considered, and the educator is now crying for the medical inspection of schools. This has already been adopted in several cities, with most gratifying results.

It is the ordinary, commonplace things in the child's life to which our attention must be directed; look to the prevention of such diseases as we can in the ordinary school life of our own children and those of our clientéle; influence state and municipal legislation for the good of the child, the school and the community. If need be, enter politics yourselves, and bring about much-needed reforms.

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Original Articles.

SECRETION AND EXUDATION CONSIDERED AS A FACTOR IN DISEASES OF THE EYE.*

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As *secretion, exudation* and *infiltration* are so much concerned in the diseases of the eye, I ask your attention, in a general way, to these subjects, not that anything new is offered, but as an introduction to the topic under consideration.

Secretion is a physiologic process, and consists in the elaboration from the blood, or other sources, of material which is discharged on the external or internal surfaces of the body. The material so separated and discharged is a secretion. Many of the secretions have special uses, which do not involve their discharge from the body. Others have no office to perform, but are separated from the blood to be discharged from the body; such may be termed excretions. Most secretions in a healthy body consist of certain well-known combinations, but when these combinations vary, or when new materials enter into their construction, the secretion may be considered abnormal.

Exudation is not a physiologic process, but the pouring out or exuding of an adventitious substance in or on the tissues of the body. Infiltration is another term for exudation, and may be used synonymously. It means the insinuation of an adventitious deposit or fluid between the elements of a tissue. The following infiltrations are adventitious or pathologic: Serous, sanguinous, urinous, cellular, purulent, tubercular, amyloid—waxy or albuminous. Those that occur normally are: The fatty, pigmentary and calcareous. Either of the latter may, under certain conditions, become abnormal.

With the above general physiologic and pathologic principles, we are the better able to consider the manner in which these processes affect the eye. I believe that if there exists within the blood a toxic element, no matter what the nature of that element, or its cause, there exists within the living organism potent agencies of nature which carry on the indescribable process of elimination. This effort to eliminate is not always performed in the same manner, but the usual way, when it is revealed in the eye, is by exudation. In the exudative process, especially in the affections of the eye, there is always present more or less inflammatory action. It can be safely laid down as an axiom that there is always associated with an exudation or infiltration of adventitious matter more or less congestion of the blood-vessels of the parts involved. In the eye, however, owing to its delicate vascular structure, a congestion of its blood-vessels is, in many instances, soon detected, especially for the reason that the vision is extremely sensitive to the slightest causes; besides, the organ both internally and externally is so admirably subject to ocular examination. As the very small blood-vessels are most liable to the exudative process, the vascular system of the eye is a prolific field for its accomplishment.

In inflammatory actions there are always two conditions present which have important bearing, especially on an organ of such delicate construction as the eye. The first condition is peculiar change in the small blood-vessels, which causes the blood, and especially its corpuscular elements, to adhere to and pass through them, forming an exudate. The second condition is the proliferation of the cells thus formed. These conditions are mostly brought about by traumatic, specific or toxic effects; and rheumatism and gout have also been held responsible, but whether it is the rheumatism and gout, or the conditions which bring about these affections, is a question not satisfactorily determined.

There is another condition that favors the exudative process in the eye. I refer to the loose connective tissue of which some parts of it are composed. This is found mainly in the conjunctiva, the uveal tract and in the retina.

The conjunctiva, composed as it is, mainly of loose connective tissue, may become edematous to the point of chemosis, from an exudation in the connective tissue which lies within its structure and underneath it. This condition is the usual result of a purulent ophthalmia, which is a splendid illustration of perverted secretion, but frequently of disease situated in the orbit, as orbital periostitis or cellulitis, or of disease of the eye proper, as choroiditis or iritis. This exudate in the connective tissue of the conjunctiva comes from the conjunctival blood-vessels and lymph-channels, and is probably in most cases due to some mechanical interference with the circulation of the blood or lymph rather than to systemic conditions.

I desire to particularly consider the exudative process in the eye proper and not its appendages, and shall do so in the order of its structural arrangement, beginning with the cornea.

Preliminary to considering the influence of the exudative process on the several structures of the eye we should be reminded that pathologists have informed us that an exudate is composed principally of a colorless granular mass of protoplasm of which the leucocyte is the type, and of which there are at least four distinct varieties recognized, viz.: the white blood-corpuscles, the lymph-corpuscles, pus-corpuscles, and the wandering connective-tissue cells. Whichever variety of the above is predominant in any particular case determines to a very great extent the result of the lesion. This applies not only to the system at large, but especially to the eye. All of these varieties occur in different structures of the eye, but the exudation of lymph-corpuscles is perhaps the most common.

The simplest type of the exudative process in the structure of the eye proper consists in the exudation of lymph-corpuscles, and is seen in the corneal ulcer of the phlyctenular type. Here one or two conditions may result, neither of which is usually very detrimental to the vision; resorption of the exudate, or breaking of the epithelium over the exudate and the formation of an ulcer. As a rule, if the exudate is not central, the vision is not seriously affected.

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One of the most serious forms of the exudative process of the non-suppurative type is seen in interstitial keratitis, in which affection the white blood-corpuscles are predominant, but often with a few giant or wandering connective-tissue cells. Only those who have treated this disease know how chronic it is and how enduring its effects. The above conditions occur when the exudate is composed mainly of lymph and is non-suppurative. But the most serious affection of the cornea presents itself in abscess, which, when not traumatic, is due to the exudation of pus-corpuscles, one of the varieties just mentioned. In this instance there is no such thing as resorption, and the lesion made by the presence of the pus and its exit leaves a permanent cavity in the cornea, if not a great destruction of its tissue, with the intrusion of the iris within the wound, a condition as a rule demanding enucleation of the organ.

The uveal tract—the iris, ciliary body and choroid—any part of which is very liable to inflammatory action, is, because of its very vascular and loose connective tissue, a prolific field for infiltrations, which often are absorbed, with or without atrophic changes. There is no better illustration of the exudative process in any affection of the eye than is seen in iritis in any of its forms.

The character of the exudate, that is whether it is principally serous or plastic, determines to a great extent the diagnosis and treatment of the affection; for it is this that so distinctly differentiates if the cause is rheumatism or syphilis.

The evidences of exudation in cyclitis, although not so readily observed as in iritis, are positive, as turbidity of the aqueous humor, flocculi of lymph and occasionally flakes of pus may be seen in the anterior chamber. The vitreous chamber is also filled with floating opacities, doubtless of the same character as that seen in the anterior chamber. No doubt the exudate in the choroid is of the same character as that in the iris and ciliary body—that is serous, plastic or purulent, but is not so readily distinguished, for in iritis and cyclitis the character of the exudate is readily seen—but in choroiditis we must depend largely on certain distinguishing symptoms; for instance, in serous iritis the inflammatory symptoms are not well marked and the patient suffers very little pain, while in plastic choroiditis the inflammatory symptoms are well marked and the pain is very severe.

There appears to be no longer a doubt that glaucoma is due to an excess in the lymph occupying the suprachoroidal space, the direct product of an exudation from the choroidal vessels. There is no doubt that the retinal lesions in renal disease are mainly due to exudative deposits and extravasations.

When the nerve-fiber layer of the retina is affected it is doubtless the result of a mechanical condition, that is, to pressure due to the swollen blood-vessels and connective tissue rather than to toxic influences. The same may be said of glycosuric and perhaps all other forms of retinitis.

Microscopic examination of the different structures of the retina in the different forms of retinitis develops about the same condition, that is, the capillaries are thickened and disposed to rupture, and the blood-corpuscles are more abundant in these regions. The nerve-fibers are also found thickened and contain inflammatory nuclei, together with red blood-corpuscles. The arteries in different parts are thickened in structure. In other parts are found crystalline masses and fatty substances, residue, doubtless of some form of exudate. All of the above conditions are positive evidence of the former existence of some process of exudation.

The most important matter for consideration in this subject is the therapeutic possibilities. What remedies have special properties in regulating the exudative process in the eye, and the modus operandi?

Atropin has rightfully been considered as the sheet-anchor in iritis, but has it a special action on the process of exudation limiting it, or is its effect mechanical, consisting of a paralyzation of the circular fibers of the iris, causing the pupil to dilate and thus preventing an adhesion of its border to the lens capsule? It is said to check the secretion. If such is the case, this alone would be beneficial in iritis. It would also be beneficial on the same grounds in glaucoma. But in this affection we find that it is very injurious and often precipitates an acute attack from the chronic or subacute form. Its action is doubtless due, in this case, to the closing of the meshes in the ligamentum pectinatum, by folds of the iris, and thus preventing, to a greater or less extent, the free communication of the aqueous humor with the canal of Schlemm.

A remedy that would control or limit to a great extent the process of exudation, especially as found in many of the diseases of the eye, would be a great desideratum, and I read this paper for the purpose of eliciting what has been observed by the members of this Section, with regard to the therapeutic possibilities. So far as my practice is concerned, outside of the local treatment, which is familiar to all, the iodid of potassium has been the more beneficial. In iritis, cyclitis, choroiditis and glaucoma I have noted positive effects. I have known it to relieve pain in these affections, often as promptly as morphia, and much more permanently.

I believe that the iodid of potassium has special action upon the inflammatory affections of the uveal tract, how it executes the results I am unable to say, but I do know that it has accomplished very much for me in these affections. I give it in the saturated solution in milk before meals. I usually prescribe not less than one teaspoonful (sixty grains) in a wine-glass of milk, and seldom hear of its disagreeing with the most delicate stomach.

EXAMINATION OF THE ACUTENESS OF VISION, COLOR PERCEPTION AND HEARING OF RAILWAY EMPLOYEES.*

BY CHARLES H. WILLIAMS, M.D.
BOSTON.

It is very essential that men engaged in the movement of railway trains, and in the quick reading of signals, by day and by night, should have such acuteness of vision as will enable them to correctly read the signals in use at the necessary distance; such perception of color that they will not, under any of the varying conditions of service, mistake a red signal for a green, or vice versa; and good hearing.

On the head end of a train it is important that these essentials should be found in even a higher degree than will suffice for the safe performance of duty in other branches of the service, and the question arises, what are the standards that should be required for the different branches of the service, and what are the best and fairest methods of examining men to make sure they come up to these standards.

The semaphore railway signal, which is coming more and more into use as the best position signal, consists of a movable arm about forty-six inches long and nine wide,

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attached to a vertical post so that it can be set in a horizontal position to indicate danger, stop; or, inclined half way or more toward the vertical post to indicate safety, go ahead.

In order to have plenty of room to stop a train, such a signal should be distinctly seen at a distance of half a mile. If at this distance lines are drawn from each end of the arm of the signal to the eye of the observer, the lines will form with each other an angle of about five minutes, in other words the length of the arm will be seen as subtending a visual angle of five minutes. In the same way the width of the arm will appear to subtend an angle of one minute. These angles, which have been chosen by signal men as best answering their needs from a practical standpoint, are the same which have been found to represent the average normal acuteness of vision. Some years ago Professor Snellen found, as the result of a large number of examinations, that the average normal eye could easily distinguish letters whose height subtended a visual angle of five minutes, and the different parts of the letters an angle of one minute, and such letters, printed in a square space, have been universally adopted as the measure of normal acuteness of vision. Therefore, it follows that if a man has sufficient acuteness of vision to read the test-letters when seen under the standard angle of five minutes, he will also be able to clearly see the semaphore signal, under ordinary conditions, at a distance of half a mile. There is, however, this difference between the signals and the letters, for with the former it is only necessary to see whether the arm stands horizontal, at danger, or inclined in the position of safety, whereas with the letters much smaller differences must be noticed, as between C, D, O, or E, F, P, etc.

It is found in practice that the semaphore arms can be read correctly and easily by men who have only 20/30 of normal acuteness of vision, as measured by the letters, and I have recommended to several railroads that it will be safe to allow as a minimum standard 20/30 of normal vision for the re-examination, every three years, of their enginemen, firemen, towermen and draw tenders. This applies to those employees already in the service in those occupations, who have become valuable men on account of their familiarity with their work, train rules, etc., and it may be regarded as sufficient if this vision is shown with both eyes open. Before testing with both eyes open, each eye should be tested separately, and if it is found that one eye has 20/30 and the other less than that, a re-examination should be made every year, to be sure that the better eye is not losing ground.

Even with vision of 20/40, as tested with the letters, a man can read the semaphore signals, although not so quickly and easily as with better vision, and I have recommended, as a minimum to be allowed in the re-examination of old employees, other than those mentioned above, who are engaged in the movement of trains, or the use of signals, an acuteness of vision of not less than 20/40 of normal, with both eyes open, each eye having first been tested separately as before.

These standards apply to the re-examination of old employes in any of the above occupations, every three years, and the tests should be made without glasses. There is no objection to the use of glasses for near work, such as the reading of train orders, etc., for in all normal eyes there is, with advancing years, a decrease in the power of focusing for near objects, which requires the use of glasses, but such eyes will see distant objects as well as ever without a glass. In the case of men whose occupation requires them to be out of doors in all kinds of weather, it will be found that in fog, rain and snow, the glasses, if worn, will often be a hindrance rather than a help, and the tendency will be to take them off when the weather conditions are very bad, and thus reduce the vision to what it is without glasses.

I have examined the vision of an engineer who had only 20/100 vision in one eye, and 30/100 in the other, without glasses, although in the favorable conditions of the physician's office glasses brought his vision up to 20/20, or normal in each eye. In his case it would not be safe to count on his having more than 30/100 of normal vision when running through a fog, for the dampness would condense on his glasses so that he would probably find it better to take them off, and in case of accident through the fault of such a man it would be very difficult to prove whether he had his glasses on, or whether they were in good condition at the time of the accident, or not, and although he might resort to the expedient one engineer told me he used, of keeping a bottle of vaselin in his pocket to rub on his glasses in case of fog, even with this help the amount of vision might be a very uncertain quantity.

In the employment of new men, a railroad company is in a position to select the best material from those who apply for work, and a standard of 20/20 without glasses, in each eye tested separately, should be required for firemen, or for those who are likely to be promoted to the position of firemen or enginemen, or for those where special acuteness of vision is required. For other occupations concerned with the movement of trains, a standard of 20/20 in one eye and not less than 20/40 in the other, without glasses, tested separately, should be required, for in employing new men it is not desirable that the minimum standard should be used which would be sufficient for continuance in the service after they have learned the business and become better able to do the work.

In fairness to the men these tests for vision should not be made when they are fatigued, and especially in re-examinations a man should be tested when he is fresh, and not at the end of a long run, for it is found that the fatigue of a long run will cause quite a perceptible diminution in the acuteness of vision, as tested at the beginning and end of such a run; this is an additional reason for requiring a sufficiently high standard of enginemen and firemen, so that such fatigue may not bring their vision below the safety point.

In examining men for entrance to railroad service, some test should be made for hypermetropia, a shorter length of the eyeball than normal, in order to avoid taking men who may have normal vision without glasses when they are young, and can overcome the hypermetropia by an effort of their accommodation, but who, as the power to keep up this effort diminishes with age, will sooner or later find that their vision without glasses is reduced below the required standard. The best way is to have the eyes of such applicants examined by a trained ophthalmologist, with the ophthalmoscope, in order to test the refraction and the condition of the interior of the eyes; if this can not be done it is possible to detect most of the cases of hypermetropia amounting to two diopters, or more, where the vision remains normal without glasses, by having two pairs of glasses in spectacle frames, one pair of plain glass, the other with a convex lens of two diopters for each eye. The applicant is tested by giving him first one pair of glasses and then the other; if he can read the letters at twenty feet, through the plain glasses, but can not read them through the convex lenses, he is accepted, but if he can read them

through both pairs of glasses, he is rejected, as it shows he must have at least two diopters of hypermetropia, which would be enough to give him trouble later on.

The size of the test-letters is a very important matter, and unfortunately the test-letters on the market, published by different firms, and even by the same firm, are often inaccurate in their size and shape.

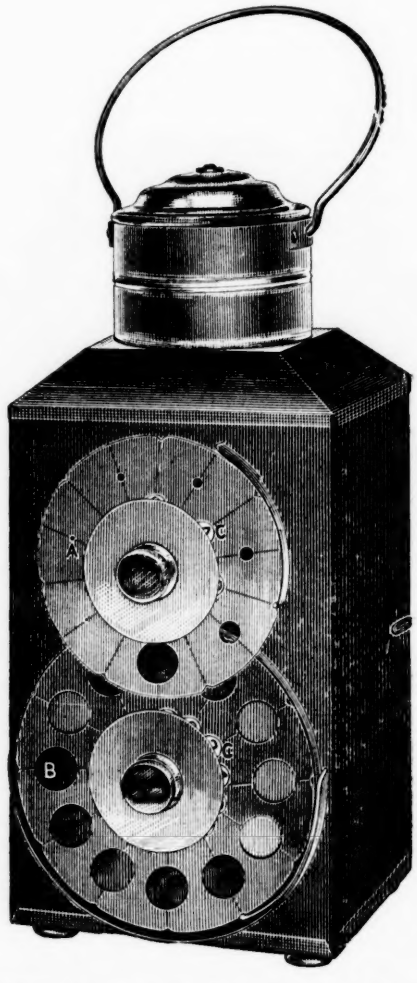
In order to subtend a visual angle of five minutes, when seen at a distance of twenty English feet, such test-letters should have a height of 35/100 of an English inch, and the width of the different parts of the letters should be 7/100 of an inch, and for 30, 40 and 50 feet, the heights should be 52/100, 70/100 and 87/100, respectively.

The most convenient test-types for railway work are those published by the Rand Avery Co., Boston. They are carefully printed on cards 3½x9 inches, one line of letters on each card, with three cards, having a different arrangement of letters on each, for each of the required distances This prevents reading the letters from memory, as the applicant can not tell which of the cards will be shown him, and finds it difficult to read the letters unless he really sees them.

In testing the color perception, two methods should be used: 1, a test by comparison of colors, in which no names are given, but colors are selected which look like the test color; 2, a test with lights of different colors so arranged that the intensity of the lights can be varied, and in which the person is asked to name the lights. The test with Holmgren's worsteds seems to be the best for the first, and a lantern in which various shades of red and green, either alone or combined with London smoke glass to alter the intensity of the color, seems to be the best for the second test. I have found it helpful to have the sets of Holmgren worsteds provided with small metal tags, so that each of the 125 skeins can be numbered, and a record kept of the skeins selected, in every case, as similar to the test skeins. The odd numbers are given to the correct colors, and even numbers to the confusion colors, this makes it much easier to check up the reports of the examinations at the central office, to which they should be sent for approval, and if any question arises in regard to any case it allows the controlling officer to made a reproduction of the colors actually selected. Only two test-skeins are used, the standard green, with which the fact of defective color perception is determined, and the rose, which serves to show whether the defect is more for green or red. The bright red test-skein, which is usually furnished with the Holmgren tests, in many cases only serves to confuse the result, especially when the amount of defective perception is small, and does not add to the value of the test.

For a time I tried the lantern arranged by Professor Donders, and made by Kaagenar of Utrecht, for testing the color sense with lights, but this lantern is not easy to manipulate and does not have a sufficient number of colors, so that I have found a lantern which I arranged for use on the N. Y., N. H. & H. R. R. gives better results. Since April 1, 1899, the tagged Holmgren worsteds and the lantern have been used on the eastern district of the New Haven railroad, in all their color examinations, and the results have been very satisfactory. This is in line with the plan proposed by Professors Donders and Snellen, which was put in effect on the railroads of Holland some years ago, and which has given good results there. It has already been found on the New Haven road, that several men have been able to pass the test with the Holmgren worsteds without selecting a single confusion color, but when tested with the lantern they showed very decided defect of color perception, and vice versa, cases have been found where very little trouble was found in naming the lights, but where the worsted test showed marked defect. The only safe plan is to have a test with both the lantern and the worsteds, and if this is done thoroughly no dangerous cases will escape detection, and all will have been done that can properly be required.

The following cut will show the lantern in its present form:



The lantern is made of japanned tin, about a foot high, and carries two revolving discs of brass, A and B on the front. The upper disc A is arranged as a diaphragm and has a series of holes drilled in it, the smallest being 5/64 of an inch, or 2 mm., in diameter, which at twenty feet would subtend a visual angle of one minute, and would correspond to the apparent size of an ordinary switch light lens when seen at a distance of 1500 feet, the other holes correspond to the width of the different parts of the test-card letters. At C, on both the upper and lower disc, there is a shield, which prevents the person being examined from seeing the holes in the discs behind the shields, in which translucent letters for the upper disc and numbers for the lower disc are placed. These letters and numbers are lighted by the lantern in such a way that the examiner can see them and note the size of the opening, or the color of the glass shown, in making a record of the name given to it by the person examined. The lower disc has eleven colored glasses and one vacant space. The colors are: four reds of different shades and intensities, made by combining two shades of red glass with London smoke glass.

three greens, two yellows, and a blue, these colors, corresponding to those in use on the eastern division of the N. Y., N. H. & H. R. R., where they have adopted red for danger, green for safety, yellow for the distant signal, and blue for the car repairers and the spacing signal. The light from the lamp shines through the glass placed in front of the center of the lantern, and by revolving the lower disc a series of colors can be shown which the person being examined should name as shown. The lantern should be placed twenty feet from the person examined, and on a level with his head.

I am now making an improvement on this lantern, in which the lower disc will have the colored glasses, the upper disc the modifying glasses, and a separate diaphragm with holes will be introduced between the discs to change the size of the area of light; this arrangement will allow a much greater number of changes of color and intensity than can be made with the present lantern.

For testing the hearing, the most convenient method, although crude, is to have the person to be tested stand at a distance of twenty feet, with one side toward the examiner, and with eyes closed, he will then repeat aloud the words spoken by the examiner, keeping the farther ear closed with the finger. It is an advantage to have an additional test with something which gives a sharper tone, like the tick of a watch, but watches vary so much in their tick that it will be better to use some form of acoumeter, like the ratchet acoumeter devised by Sharp & Smith, Chicago, for use on the C., B. & Q. R. R.; these are inexpensive and seem to give good results.

Appended will be found copies of forms for recording the results of these examinations, and for a certificate of examination, now in use on the eastern district of the N. Y., N. H. & H. R. R.

THE NEW YORK, NEW HAVEN AND HARTFORD RAILROAD CO.

. . . . . Division.

RECORD OF EXAMINATION OF SIGHT, COLOR SENSE AND HEARING.

Name. Occupation. Date.

SIGHT.

Acuteness of Vision, without Glasses.	Right Eye.	Left Eye.	Both Eyes Open.
Distance in feet, at which standard test-types are read			
Smallest line of standard test-type read correctly			

Reading Test, both Eyes Open.	Without Glasses.	With Glasses.
Size of reading test-type read correctly		
Written train orders read correctly (Yes or no)		

Position Signal Test, without glasses.	Right Eye.	Left Eye.	Both Eyes Open.
Distance in feet, at which card with semaphore arms can be read correctly			

COLOR SENSE.

Test-Skein Submitted.	Number on the Skeins in Standard Holmgren Color Set, selected as similar to Test-Skeins.
A Green	
B Rose	

Note whether the selection is prompt or hesitating.

Standard Testing Lantern.	Size of opening used.		1	2	3	4	5	6
	Number.	Number of color shown.						
		Name given.						
		Number of color shown.	7	8	9	10	11	12
		Name given.						

HEARING.

Number of feet at which numbers or words can be repeated correctly when spoken in a conversational tone	Right Ear.	Left Ear.
Number of feet at which ratchet of acoumeter can be heard	Right Ear.	Left Ear.

Remarks . . . . . .

. . . . . Examiner.

THE NEW YORK, NEW HAVEN AND HARTFORD RAILROAD COMPANY.

This certifies that I have this day carefully tested the Acuteness of Vision and Color Perception of . . . . . , whose signature is attached hereto, and find that he is not disqualified by color blindness or other defective sight from employment where he is required to distinguish form and color of signals.

. . . . . Examiner.

. . . . . 18. . . .
Date of Examination.

. . . . . .
Signature of Party Examined.

DISCUSSION.

DR. J. E. MINNEY, Topeka, Kan.—The railroad with which I am connected has the largest mileage of any in the world, perhaps, and we have found that the earlier examinations of the men were very loosely conducted. One thing spoken of by Dr. Williams has bothered us all the way along, that is, the question of putting aside the old employee. I asked these questions of the superintendent: Shall I take into consideration the experience, habits of life and intelligence of the old employee? He said, "no." Nevertheless, we did, and I think we are justified in doing so. I think the crucial examination should be made in the start, before the man is employed, and that is the time to determine whether the man is perfect. If we let them pass with defects, we make a very serious mistake, especially if they are in the line of promotion.

We do not use all the tests the Doctor speaks of, but in addition to the yarn test we use what we consider practical ones, such as calling attention to different objects and signs along the street, the color of a dress or the hats worn by women passing by, etc., and by that means I have more than once detected errors which I failed to detect by other means. I have tried the plan of putting a +2 D on a young man and testing his vision. If he reads 20/20 he should be excluded, for a young man who has that degree of hypermetropia will in course of time be excluded from promotion.

As for colors of the lights, we have in the main excluded all but the red, green and blue.

DR. H. GIFFORD, Omaha, Neb.—If there is any way possible, we ought to insist on a thorough ophthalmoscopic examination of all these employees, for we all understand how progressive conditions may exist which may lead to serious difficulties in a short time, and which pass unobserved unless such an examination be made.

The Doctor's method of preventing the memorizing of letters is a very good one, but there is another probably equally as good and less expensive, that is to use pieces of pasteboard with one or more holes which allow only one letter to be seen at a time.

In regard to the use of the +2 D lens, that does not exclude all the bad hypermetropes, for some may have three and four dioptrics of hypermetropia and yet they will not see 20/20 when we put on a +2 D.

We ought not only to examine the fundus of the eye, but to examine the lids. Every now and then I meet with a case of trachoma which has passed the ordinary tests, and these cases are liable to keratitis, which will interfere with the ability to work, or if work is attempted during the keratitis, may lead to serious accidents.

DR. D. S. REYNOLDS, Louisville, Ky.—Any test of color per-

ception limited to a single method made in the open daylight alone, or in the dark chamber alone, should not be held to be conclusive in itself. There are many persons who meet all the requirements of the Holmgren test in daylight, who could not in the dark chamber. The test should be made both in daylight and in the dark room, and by at least two methods, the Holmgren or the Donder's, and the lantern test, or its equivalent in form. The colored glass discs placed before a luminous point at six meters is the usual form of lantern test I employ.

DR. FRANK ALLPORT, Chicago.—I wish to protest a little against the method of examination which Dr. Williams advocates. I see no reason why we should minimize the importance of having these examinations of railroad employees made by ophthalmologists. It may be difficult to so arrange it, and yet I can not see why it is not possible for ophthalmologists to make these examinations just as general railroad surgeons make the general physical examination. If it is necessary to have a surgeon examine the heart, lungs, etc., there is no reason why the eyes and ears should be relegated to an examination by a railroad employee. The eyes and ears are certainly as important in this work. I have examined many employees who have passed these examinations given by chiefs of departments, and I have found just about the same average of color blindness that we should expect to find in men in general—men who have not had any examination whatever. On one railroad, some years ago, I found an average of 3 or 4 per cent. of color blindness among the men who had been passed by division superintendents and who had received instructions from physicians supposed to understand the importance of detecting color blindness. We should hesitate in giving sanction to the examination of railroad men by anyone except the ophthalmic surgeon, and I certainly feel that the method of testing the color sense employed by Dr. Minney, by having them name the color of dress goods, is turning us back a good many years. There are many other things to be taken into consideration, and there should be an examination by the ophthalmoscope and the perimeter in order to determine whether the individual is capable and worthy of being intrusted with the lives of the people.

DR. C. E. NORTON, Lewiston, Me.—Some of the railroad companies have a rule, which, I think, is a wrong one, that no fireman or engineer on their roads can wear spectacles. I can illustrate my point by the following case: A man came to my office having hypermetropia, but with a vision in each eye greater than 20/30. He was employed on one of these railroads and was complaining of asthenopia. I informed him that he needed spectacles and he replied that their use would mean his discharge from the road, and so he is to-day working with his asthenopia and imperfect vision, and his service is attended with greater danger to the public and to the road than it would be if he were wearing the proper glasses, as such glasses would improve his vision to 20/20. We, as ophthalmologists, have the opportunity to educate those who are in control of the railroad systems, and it seems to me that if men whose vision is poor, but which could be improved by glasses, are continued in their services, we should insist on their wearing them.

DR. A. B. RANDALL, Philadelphia—There is one exceedingly important point I have not heard mentioned, and which is a part of the system employed by Dr. Thomas on the Pennsylvania Railroad. He always examines the men in a group of a dozen, so that a jury of the other employees sits upon the others. There is considerable objection among the men, to what they consider ultra-scientific tests, and they are apt to feel that they have not been fairly treated by such; but if the other men looking on see a man matching his green with reds, they may be in sympathy with him, but they are very sure they do not want that man running a train either before or behind them. Thus they are all enlisted in support of the examinations.

DR. GEO. F. KEIPER, Lafayette, Ind.—There seems to be a prejudice against the wearing of glasses by train employees, but we may take this to be true, that a man with glasses whose vision is 20/20 is entitled to just as much consideration and to promotion as a man whose vision is 20/20 without glasses.

DR. EDWARD JACKSON, Denver, Colo.—Among the dangers we have to guard against is one which is becoming a danger of great importance, namely, the basing of undue confidence on insufficient tests. Perhaps the most serious defects are not the congenital defects; the central scotoma for color may be more dangerous than congenital color blindness, though less common. I have also seen a railroad engineer with absolute scotoma from hyaloid hemorrhage, on duty at the time he was under my care. Defects of that sort are liable to arise, after an examination which has shown the man's vision to be perfect.

While the placing of examinations in the hands of the ophthalmologists would guard against certain dangers, I believe that any system will be to an extent inefficient unless the men themselves are encouraged to report any defect of vision which may occur. They should know that they will not be turned adrift on account of it. They should be under such regulations that they would be ready to be given a different position, or laid off for a time, whenever the vision becomes defective.

DR. C. H. WILLIAMS, Boston—Several important points have been brought out in this discussion. The old employee with a good record, ought to be treated with consideration, and on those roads with which I have been connected they provide for such men, so far as possible, by giving them other work, where they will not have to use signals, and where their defects will not be dangerous. In regard to having all these examinations made by trained ophthalmologists, no doubt that would be the best thing if it could be done, especially if it could be done uniformly in accordance with a well-matured plan, but on large railroad systems like the Burlington, where I was medical director for six years, the distances are too great. This system covers more than 7000 miles of track, and a plan was arranged by which the medical examiners, who make the physical examination of the men on the different divisions of the road, also make the tests for vision, color sense and hearing, doubtful cases being referred to an ophthalmologist. On the N. Y., N. H. & H. R. R., these tests are made by employees selected by the management: these men are first tested by an expert to see if their vision, color sense and hearing are normal; they are then instructed by him in the use of materials for making the tests, and the proper filling out of the forms. Their reports on the standard forms are copied at the division headquarters, and are then forwarded to the central office for final approval and file, provision being made for the reference of any doubtful case to an expert ophthalmologist. It seems to me that tests made in this way will give better and more uniform results than when intrusted to a number of different ophthalmologists, each of whom may examine the men in his own way, and often with material not so well suited to the purpose as that furnished by the company.

We need to have this whole matter of the standards, and methods of examination put in better and more uniform shape, and a committee of your ASSOCIATION are now considering this question.

LIPEMIA IN DIABETES MELLITUS.*

BY THOMAS B. FUTCHER, M.B.

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BALTIMORE, MD.

A fatty condition of the blood has repeatedly been observed post-mortem in cases of diabetes mellitus. Less frequently, however, has the observation been made during life, and the probability that lipemia is a more common occurrence during the course of a case of diabetes than is generally supposed has led me to report the following case:

G. K., a male, aged 31 years, a brakeman by occupation, was admitted to Dr. Osler's service in the Johns Hopkins Hospital, April 10, 1899, complaining of aching pain in the back and legs, and loss of strength.

Family History.—Unimportant, with the exception that a sister and maternal uncle died of tuberculosis. No family history of diabetes.

Personal History.—The patient had whooping-cough and measles when a child and scarlet fever when 8 years of age. He states that he has had malaria every spring and fall for the past ten years. The last attack was one year ago. As a brakeman, he had been subjected to great exposure. He was badly frightened, but not injured, eight years ago, by falling from a train and being dragged a considerable distance. Two years ago he fell from a twelve-foot trestle, striking his back; he was unconscious for a short time. Three years ago he was struck while standing between two moving trains but was not seriously injured. He had drunk beer since boyhood and whisky in excess since he was 17 years of age. He smokes and chews tobacco. Four years ago he contracted gonorrhea. There was no luetic history. Since 6 years

*Presented to the Section on Practice of Medicine, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus Ohio, June 6-9, 1899.

of age he had had a purulent discharge from his left ear. He had always been a hearty eater, eating large quantities of bread at his meals.

Present Illness.—About the middle of February, 1899, the patient noticed that his thirst was becoming excessive and that he was drinking large quantities of water. He felt weak and suffered from headaches and occasional cramps in his legs. Vomiting after his meals was a frequent symptom. He lost weight rapidly. About February 15, he weighed 150 pounds; on April 3 his weight was reduced to 118 pounds. During February he had to void his urine on an average of three times during the night. At the time of admission he was forced to urinate about every three-quarters of an hour during the night and every half hour during the day. On one occasion he measured his urine for twenty-four hours and found the amount to be two gallons, or about 8 litres. His sexual appetite and power have markedly diminished.

Physical Examination on Admission.—The patient is a medium-sized, somewhat emaciated man; his cheeks are red and venules injected; his lips and mucous membranes of a good color; his tongue slightly coated. Both pupils are slightly dilated, the left being larger than the right; they react to light and to accommodation. The skin of the whole body is dry, harsh and desquamating. There is a slight purulent discharge from the left ear.

The pulse is of good volume and tension; regular in force and rhythm; vessel wall slightly thickened; 80 beats to the minute.

The thorax is well-formed, and the lungs are clear throughout on percussion and ausculation.

The point of maximum cardiac impulse is neither visible nor palpable. The heart-sounds are best heard in the fifth interspace 6.75 cm. from the mid-sternal line. The cardiac dulness is normal in extent. The heart-sounds are clear at the apex and base, and of normal relative intensity. The areas of relative and absolute cardiac dulness is normal; border of liver not palpable.

The abdomen is slightly retracted but symmetrical. There is no abdominal tenderness, nor is there anything abnormal to be felt in the region of the pancreas. The spleen is not palpable.

The genitalia are normal on inspection; no scar. The superficial lymphatic glands are slightly enlarged; the epitrochlears are just palpable.

The patellar tendon reflex is still present and active on both sides.

The urine, on admission, was very pale in color, clear, and without macroscopic sediment; acid in reaction; sp. gr., 1038; no special odor. There was no albumin. Sugar was present, the polariscope showing 5 per cent. The urine gave Gerhardt's diacetic acid and the acetone reactions, but no B-oxybutyric acid could be demonstrated. On microscopic examination, no casts were found, but there were numerous squamous epithelial cells.

The patient was placed on the hospital mixed diet on April 11, 12 and 13, the excretion of sugar on these days being 142.5, 290 and 235 grams respectively. On April 14 a modified standard von Noorden diet, which contained no carbohydrates, was started. There was a sudden drop in the sugar elimination from 235 to 117 grams in the twenty-four hours. On the succeeding days the amount of sugar gradually diminished and from 7 a. m. on April 18 to 7 a. m. on April 19, the day on which the patient left the hospital, only 29.7 grams were excreted, the quantity of urine voided being 1800 c.c. Acetone and diacetic acid were present in the urine and were practically constantly found during his stay of nine days in the hospital. The largest amount of urine was eliminated on April 12 to 13, when the quantity reached 4680 c.c.

The changes in the blood constituted the chief features of interest in this case. On April 13, a microscopic examination of the fresh blood showed enormous numbers of refractile granules which varied considerably in size, the largest being about 2 μ in diameter and the smallest about 0.5 μ. The granules showed very active Brownian movement. The resemblance of these bodies to micro-organisms was so striking that the clinical clerk in charge of the case reported that the blood was swarming with bacteria. My impression at the time was that these granules were nothing more than a marked increase in the Müller's hemokonien, or blood-dust granules, which are present in varying numbers in normal blood. Dr. Osler, who subsequently saw a specimen of the fresh blood, expressed the opinion that the granules were probably fat-particles, and suggested that some of the blood-serum be obtained for examination.

On April 14 a small amount of the patient's blood was centrifugalized by means of the hematokrit, and the serum thus obtained was compared with that from a non-diabetic patient, separated in the same way. By reflected light and by comparing the two tubes over a black background, the diabetic serum was found to be very markedly turbid and milky in appearance, whereas that from the non-diabetic case was clear and transparent. The serum from the diabetic patient, when examined microscopically, showed enormous numbers of granules similar to those found in the fresh specimen of blood. The first drop of serum blown out for examination contained them in by far the largest numbers, showing that they were very light as compared with the red blood-cells which had been driven by the centrifugal force to the distal end of the capillary tube. Some of the granules seemed to take on a slight black color with osmic acid.

On April 15, 30 c.c. of blood were withdrawn from the right median cephalic vein by means of a blood-culture syringe. The blood was preserved in small test-tubes in order to allow the serum to separate. The latter was extremely opaque throughout, and milky in appearance, and, on standing, a very thin layer of creamy looking fluid about 1 mm. deep accumulated on the surface. Microscopic examination of the serum showed that it contained enormous numbers of refractile droplets similar in size and appearance to those observed in the fresh-blood specimen. There was a tendency for the droplets and granules to clump together into fairly large masses. The blood-serum, obtained in a similar manner, from a second case of diabetes in whose blood there were but few granules, and also that from a non-diabetic patient, was quite clear and transparent.

Some of the milky serum from the diabetic patient was shaken up with ether, with the result that the turbidity was only in part cleared up. While examining a specimen of the serum under the microscope ether was allowed to flow under the cover-slip and to ultimately mix with the serum. Only a portion of the droplets were dissolved, the remainder being unaffected by the ether. A 1-per cent. solution of osmic acid stained a certain number of the droplets a faint blackish tint. Some of the droplets gave the brick-red reaction for fat with Sudan III; many of them, however, were simply stained yellow. Strong acetic acid solution had no effect on the granules, indicating strongly that they

were not the granules of polymorphonuclear or eosinophilic leucocytes.

From these microchemical tests, it would appear that the turbidity of the urine was only in part due to the presence of ordinary fat. It is possible that these granules were in part made of albuminous particles. Virchow (*Gesammelte, Abhandlungen,* I, 1856, p. 138) refers to a case recorded by Buchanan in which the blood contained particles of an albuminous nature. He cites personal observations in which he believed that the granules present in the blood serum were minute fat droplets surrounded by an albuminous coating. The latter obscured the optical characteristics of the fat droplets and prevented them from being dissolved by the usual fat solvents.

Beyond the marked diminution in the amount of sugar in the urine, the patient's general condition was not materially improved by his stay in the hospital. He has been kept under observation in the Dispensary and has taken a non-carbohydrate diet since his discharge.

On May 15 he returned looking much better. He had gained ten pounds in weight, and the urine was entirely free from sugar. He returned again on May 18. The urine contained no sugar. A microscopic examination of the fresh blood revealed the fact that the minute droplets had almost entirely disappeared and no more granules were found than could be accounted for by the hemokonien particles of Müller, present in any normal blood. From the median cephalic vein 30 c.c. of blood were removed. The serum, on being allowed to separate in test-tubes, was almost perfectly clear and transparent and was in striking contrast to that obtained on April 15, while the patient was in the hospital. Microscopic examination of the blood-serum showed extremely few, fine, actively dancing granules.

The blood normally contains minute quantities of fat, which is present in the form of neutral fats, cholesterin and lecithin. The mean amount of fat in the blood of men, according to Becquerel and Rodier[1], is 1.6 parts per 1000 of blood, the maximum being 3.25, and the minimum 1.00. It exists in the form of a very fine emulsion, and is not sufficient to cause any turbidity of the blood-serum. The percentage of fat may be markedly increased, giving rise to lipemia, in a number of physiologic and pathologic conditions. The blood of infants at the breast, and of suckling animals, such as mice and rats, contains a much higher percentage of fats and the serum is distinctly turbid. There is also a temporary increase after the ingestion of a meal rich in fats. Neumeister[2] states that the blood of an animal fed on large quantities of fat may reach 1 per cent., whereas, in the fasting stage it is only a mere fraction of this. Individuals with marked obesity occasionally show lipemia. The condition is sometimes present in pregnant women, and occurs also in chronic alcoholics. It is quite common in fractures of the long bones with injury of the yellow marrow and also in lacerations of the blood-vessels contained in the fatty subcutaneous tissue. According to Hammarsten[3], lipemia has also been observed in diseases of the liver, Bright's disease, tuberculosis, malaria and cholera. It has repeatedly been observed in phosphorus-poisoning, in which, according to Puppe, the fat is derived in part from the degeneration of the various organs and also as a result of a fatty degeneration of the elements of the blood and of the vessel walls.

What interests us most, however, is the association of lipemia with diabetes mellitus. This association is by no means a recent observation. According to Naunyn[4], it was noted as early as 1799, by Mariet of Edinburgh, who described the blood as having a characteristic grayish color. Naunyn states that the separated blood-serum of diabetic patients who have lipemia is opaque and of a whitish-gray color, like chyle. The turbidity, as in the case of chyle, is caused by the presence of fat in the finest possible emulsion.

Even with the highest magnifying powers the fat granules appear as minute dust particles. That the turbidity is due to fat is easy to demonstrate; by shaking the blood-serum with ether the fat is dissolved by the latter and the blood-serum becomes clear.

The amount of fat in the lipemia of diabetes may reach considerable proportions. Thus Babington[5] found 30, Traill[6] 45, and Lecanu 117 parts in 1000 parts of blood. In a dog which developed spontaneous diabetes with necrosis of the pancreas, D. Gerhardt, an assistant of Naunyn's, found in 1000 parts of blood 123 parts of fat. Gamgee[7], who observed several cases of lipemia in diabetes, records one case in which, during life 12.76 and at post-mortem 13.35 parts of fat were contained in 1000 of blood. The patient died in coma. The percentage of fat, however, may not be nearly so high and yet the serum have a chylous appearance. Thus Naunyn's case, No. 59, that died in coma had only 5.5 parts *pro mille* of blood. Some observers have persistently failed to find fat droplets in the blood of diabetics. Williamson makes the following statement: "During life I have examined drops of the blood from numerous diabetic patients microscopically, but have never met with any indication of fat globules in the serum; also the addition of perosmic acid has not revealed the presence of any fat globules. Frerichs has obtained negative results."

Various explanations have been advanced to account for the lipemia of diabetes. Hoppe-Seyler held that it was merely a physiologic process, and that the fat had the chyle for its origin. Owing to the enormous appetites of diabetics, the process of digestion is practically continuous and there is an overproduction of chyle much of which reaches the circulating blood. This seems a very plausible explanation, and appears to be supported by the fact that lipemia is common in infants at the breast and in suckling mice, rats, etc., in which the digestive process is almost continuous. Ebstein, however, was one of the first to point out that this explanation is not sufficient to explain all cases. In Naunyn's case which showed only 5.5 parts of fat *pro mille* of blood, no food had been ingested for twenty-four hours previous to the withdrawal of the blood, and very little had been taken for several days. In the case of spontaneous diabetes in a dog, in which Gerhardt found that the blood contained 123 parts of fat *pro mille,* no food had been taken for nearly twenty-four hours. It would appear then that lipemia in diabetes must be considered, in certain instances, a pathologic and not a physiologic process. Ebstein[8] is of the opinion that in some diabetic cases a very considerable part of the fat in the blood results from degenerative processes going on in various tissues of the body, and probably in the blood itself. Naunyn is also of opinion that the fat is not always the result of increased fat ingestion but also a consequence of a disturbed or defective oxidation of the tissues. He states that, in his opinion, lipemia occurs only in the severest forms of diabetes and that he has observed it only in cases in which large amounts of sugar were being excreted.

One naturally is led to ask: Is an excess of fat in the blood of diabetic patients of any pathologic signifi-

cance? A number of good observers are of the opinion that it is. The literature contains reports of several fatal cases in which fat emboli plugged the vessels of various organs, chiefly those of the brain, lungs and kidneys. In some cases these fat emboli have been found in the cerebral and pulmonary vessels of patients whose death was attended by coma. Saunders and Hamilton advanced the theory that the respiratory and nervous phenomena of diabetic coma are caused by fat embolism of the pulmonary and cerebral capillaries. They based their theory on the post-mortem findings in one case of diabetic coma, in which the blood was very fatty and fat emboli were found in the vessels of the lungs and kidneys. The blocking of the vessels of the brain and lungs by fat emboli in diabetic coma has been a comparatively frequent observation at autopsy. Naunyn thinks that the fat particles are much too fine to be the cause of the fat emboli. Embolism could be explained, however, by the agglutination, as it were, of several fat particles giving rise to a clump of considerable size, such as one sees on examination of a fresh specimen of lipemic blood.

It is an interesting fact that Küssmaul's[9] first case of diabetic coma, in which he first described the symptom of air-hunger, also had lipemia. The lungs presented about twenty hemorrhagic infarcts, varying in dimensions, the largest being about the size of a hazel-nut. The blood collected from the ventricles of the heart, showed on the following day a milky layer on its surface. That from the ventricles also showed a supernatant milky layer. After incising the lower lobe of the left lung a milky serum could be pressed out of one of the vessels. The turbidity of the serum cleared up on shaking it with ether, showing that the milkiness was due to the presence of fat. On microscopic examination the milky layer of the blood-serum showed fat particles varying in size from minute specks to that of starch granules. There was present, in addition, a fine detritus which had the optical characteristics of albumin granules. This detritus was insoluble in ether, and Küssmaul was of the opinion that the granules were of an albuminous character. Concerning the small infarcts, Küssmaul remarks: "Perhaps we might attribute it to the lipemia and fat embolism, the numerous small lung infarcts, at least another source of embolism was not to be discovered. In no case could the fearful terminal dyspnea have originated in these small infarcts, the greater part of which were of far older date." We thus see that the theory that the dyspnea of diabetic coma was caused by fat embolism, had not escaped the notice of Küssmaul as early as 1874, although he merely referred to it and dismissed it from his mind.

The general consensus of opinion now is that the fat emboli in diabetes have nothing whatever to do with the causation of diabetic coma. It is almost universally accepted that the coma is the result of an auto-intoxication due to the circulation in the blood of B-oxybutyric acid and the allied substances, diacetic acid and acetone.

The subject of fat embolism and fat thrombosis in diabetes has recently received the attention of Ebstein[10], who reports a case of diabetes where the patient died in coma. The autopsy showed lipemia and fat emboli in the vessels of the lungs, kidneys and brain. Ebstein was inclined to the opinion that the lipemia in this case was due to degenerative changes in the organs, such as the liver and kidneys, and also in part to degeneration of the leucocytes of the blood. The blocking of the vessels of the kidneys was, in his opinion, a fat thrombosis rather than a fat embolism. He also mentions the possibility that the necrosis of the epithelial cells of the various organs in diabetes could be produced by fatty embolism of the vessels supplying the involved parts. Beneke[10] has shown that the fat in the mildest cases of fat embolism undergoes subsequent resorption. According to Lipace Hanriot this is accomplished as a result of a fermentative process. Ebstein thinks that there is little hope of removing the lipemic condition of the blood or its consequences in those cases where the lipemia results from degenerative processes in the organs and blood itself. Where the lipemia is a result of the amount and nature of the food ingested, the condition can be cleared up by proper dieting.

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THE SURGICAL SIGNIFICANCE OF CERTAIN ANATOMIC, PHYSIOLOGIC AND PATHOLOGIC PECULIARITIES OF THE PERITONEUM.*

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At this time, when the attention of the medical profession is so exclusively engaged in the perfection and multiplication of methods and means for the doing of aseptic and antiseptic surgery, we are prone to neglect the study and consideration of the less attractive factors of successful work; and, perhaps, overenthused by the many triumphs of modern surgery, we may at times forget that Nature is still the Great Restorer, and that only from a study of her ways and means of combating disease can we learn how best to assist her.

The special and urgent need of pursuing these less popular lines of investigation must be apparent, however, to those who take the time to study and determine the causes of our present mortality and unsatisfactory results in the intraperitoneal surgery; for here our deaths—barring those from malignant disease—are commonly due to the presence of infection in a region where antiseptics can not be employed, and our incomplete recoveries are dependent on causes that brilliant operative procedures alone can not prevent.

I believe most experienced operators recognize that special physiologic and pathologic conditions modify our surgery in this region, and will agree that our further progress is now opposed by obstacles that can only be removed by a clearer conception of the rôle played by the peritoneum in health and disease. Until the physiologist and pathologist shall furnish us with a perfect conception, I believe it to be our duty as operators to keep constantly in mind at least an outline of such anatomic, physiologic and pathologic peculiarities of this tissue as are established by experimental data, and from our clinical observations endeavor to better

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interpret their surgical significance. The outline that I shall present for your consideration is neither novel nor complete, but I trust that it may prove helpful in emphasizing the practical surgical bearing of some of these peculiarities.

From the surgeon's standpoint, the peritoneum may be regarded as an immense lymph-sac, affording the means of numberless stomata, or minute openings between the endothelial cells and by the lymph-spaces and capillaries, the freest and most direct communication with the general lymphatic system and blood-currents. This membrane has two functions of the greatest physiologic importance and surgical interest: the one to grant mobility to the contained vital organs; the other to afford them protection from disease and injury. In the perfect preservation of the first function and the judicious utilization of the second lie the secrets of successful intraperitoneal surgery. And from the very beginning of our deliberations upon treatment — whether operative or non-operative — two thoughts should be kept prominently in mind: 1. Free movement of the pelvic and abdominal viscera is absolutely essential to the healthful performance of their normal functions, and any conception of disease or injury that overlooks or underestimates this physiologic necessity will surely lead to disastrous conclusions. 2. The very existence of pelvic and abdominal surgery, with all its possibilities for the saving of life and suffering, depends less on ordinary surgical knowledge and skill, than on extraordinary inherent powers of the peritoneum to repair injuries, oppose diseases, and overcome infection. The methods by which the peritoneum exercises its protective functions are: 1, *exudative* or *reparative:* 2, *absorptive* or *eliminative;* and 3, *phagocytic.* All these may be in operation at the same time or not, as the varying conditions may favor or demand. *The exudative or reparative functions of the peritoneum,* taken alone, do not include the destruction and elimination of pathogenic germs, but simply the repair of injuries and the formation of protective barriers as a defense against the invasion of infection.

When the integrity of the peritoneum is threatened by trauma, exposure, the presence of a foreign body, or the invasion of microbic foes, an exudation of serum occurs at once, and later it may be, plastic lymph is thrown out, which unites the nearby peritoneal surfaces either directly or by organized bands of adhesions, thus forming a more or less perfect protective wall, separating the general peritoneal cavity from the diseased or injured parts.

This sealing up, encapsulating, or walling-off process is described in such interesting detail in all our textbooks, and its uses and advantages have been so fully and favorably discussed and so generally admitted, that at this time I shall only refer to those errors that we may fall into from an overconfidence in this mode of repair.

We should remember that such protection is only an uncertain temporary expedient of nature for the defense, not the restoration of health, which may often prove a valuable supplement, but never a perfect substitute for good surgery.

While it has undoubtedly enabled many a sufferer from a tubal or an appendiceal abscess to survive the non-operative treatment, such confidence in its protective powers is misplaced, and not based on sound reasoning, and is unquestionably responsible for a long list of failures that prompt and complete operative measures might have prevented. It is true that we are often compelled to trust to this mode of repair to protect our patient before our diagnosis is made, or where an operation is impossible or inadvisable, or after an operation is done, to make good the faults or failures of our surgical work; but when we consider that the life and health of our patient is depending on pathologic changes taking place under a rigid or distended abdomen, and therefore unseen, uncontrollable and quite uncertain, and that these changes involve, under the most favorable conditions, the formation of peritoneal adhesions and the imprisonment of devitalized or infective tissue within the abdominal cavity, with all their possible dangers and distresses, immediate and remote, I am sure that the superior advantages of prompt, clean, and complete surgical procedures will by comparison be apparent to the most practical surgeons.

It is well known that any disorganized, cicatricial, devitalized, or strangulated tissue or bands of adhesions or blood-clots left within the peritoneal cavity offer weakened spots for the lodgment and multiplication of pyogenic bacteria, and the many evil consequences liable to ensue from peritoneal adhesions are generally admitted, but I am convinced that these factors deserve more consideration in the operating-room than they usually receive, and that in time thoughtful surgeons will rank them as second only to sepsis as causes of distressing and dangerous symptoms. In partial support of this opinion permit me to make a brief quotation from a paper that I read before this Section a year ago: "The stomach and intestines seem to readily adjust themselves to changes in position and crowding produced by large tumors or pregnancy, but any interference with the functions of their muscular coat, impairing, preventing, or reversing normal peristalsis, whether by direct pressure of tumors, the dragging, constricting, or occluding of bands of adhesions or the action of toxic irritants, may be followed by the most serious results.

"Normal peristalsis depends on perfect and regular contractions of the circular and longitudinal fibers of the muscular coats of the intestines, and as no chain is stronger than its weakest link, any band of adhesion that serves to impair the functional activity of any part, however small, of this muscular coat, must interfere with normal peristalsis. All pelvic and abdominal surgeons who have studied carefully the many excellent articles on gastroptosis, gastro-enteroptosis, dynamic and adynamic ileus, etc., must be impressed that these conditions are due, not directly to downward displacement of the abdominal viscera but to interference with the normal functional activity of the muscles employed in peristalsis, and that this interference is usually due to the dragging, constricting, or occluding effects of adhesions, or in rare instances to the presence of microbic or other irritants, as lead.

"This view is further corroborated by the well-known fact that the omentum is always quick to attach itself to any pelvic inflammation, and the contraction and impaired mobility that ensue are likely to be followed by dragging on the colon and stomach, and to be attended by characteristic gastric symptoms.

"A colon heavily loaded with fecal matter may, however, produce the same displacement with similar symptoms. The vomiting accompanying hernia of the omentum is susceptible of the same explanation."

The absorptive and phagocytic powers of the peritoneum are so intimately associated and interdependent that we may consider them together. We will be able to form something like an adequate idea of the enormous capacity of these powers of the peritoneum if we recall

that the peritoneal cavity is by far the largest lymph-sac in the body, having a serous surface equal in area to that of the skin—about 17 or 18 square feet—capable of absorbing or of transuding under propitious influences approximately two gallons of fluid in one hour; and connected with the general lymphatic system, and blood-currents, and through them with the eliminative organs of the body, by a short and most direct route.

Phagocytosis, under favorable conditions, begins in the peritoneal cavity and continues actively in the lymph-spaces, capillaries, and lymphatic vessels and glands, and in the blood-vessels, the activity of this process depending largely on the rapidity with which the absorptive powers bring the pathogenic micro-organisms into proximity to those cells possessing phagocytic powers. The particular route taken by this absorbed fluid is still under discussion, but recent investigations tend to prove that from the lymph-spaces of the peritoneum it passes rapidly through the lymph-capillaries to the retrosternal and mediastinal lymphatic glands and thence to the general lymphatic circulation or blood-current. It is worthy of special note that pathogenic bacteria, in making their exit from the peritoneal cavity by this path, not only meet the greatest number of their natural antagonists en route, but, should they survive, quickly find their way to the kidneys, and mucous membrane of the intestinal canal, which are known to be the chief excretory organs by which pathogenic microbes are eliminated from the system. In this way the peritoneum effects the removal of fluids and all small particles of toxic or irritating extraneous matter, while the larger foreign bodies are left to the less certain process of encapsulation. In health, when these protective functions are dormant, the balance between the inflow and outflow is such as to merely moisten the peritoneal surfaces, and permit free movement of the contained organs without friction; but when infection is present and fatal peritonitis or septicemia threatens the patient, the enormous exudative or absorptive powers of the peritoneum may be called into requisition, and, aided by favorable conditions, may overcome an infection that the most consummate surgical skill could not reach or successfully oppose. Regarding the local and general conditions that influence these protective and eliminative powers, recent experimental investigations as well as clinical experience tend to confirm the following conclusions: 1. Lessened blood-pressure encourages absorption and consequently favors phagocytosis. 2. A normal heart and healthy excretory organs capable of temporary excessive functional activity are favorable factors in the elimination of pathogenic germs. 3. The smaller the quantity, the less the virulence, and the more general the distribution of the pathogenic bacteria, the more likely the peritoneum is to dispose of them. 4. Any *locus minoris resistentia,* as an uncovered wound, bruised, devitalized or strangulated tissue, or any infected blood-clots, debris, particles of lymph, etc., offer inviting sites for the lodgment and multiplication of bacteria, and hence may retard or prevent absorption, or may encourage exudation and the formation of adhesions. 5. The presence of any foreign body, even if aseptic, within the peritoneal cavity is always an irritant and a certain producer of adhesions. 6. All peritoneal adhesions retard absorption, first, by providing a convenient place for the concealment of pyogenic bacteria, and secondly, by interfering with the normal mobility and functional activity of the peritoneum. 7. Any interference with normal peristalsis, by angulation, partial or complete occlusion of the bowel from constricting bands of adhesions, or otherwise, may result in a most serious complication, and is always detrimental to absorption and elimination of infection. 8. Phagocytosis is vastly more effective when a large area of peritoneal surface is brought into contact with diluted infection, than when a limited area is compelled to oppose a more concentrated infection.

Finally, the foregoing conclusions support the belief that pathogenic germs, regardless of their number and virulence, may always be safely disposed of, provided the surgeon does his part promptly and completely, and is able to secure conditions that are favorable for these natural agencies to exercise their full protective powers.

No experienced operator, impressed with the frequency and fatality of so-called pus cases, can remain unmindful of the importance of securing the co-operation of these natural agencies; but it is never easy to unqualifiedly accept and practice the strange teachings of a new pathology, so long as a modification or imitation of tried methods yields fairly good results. And thus we often find ourselves overinfluenced by the evidence of clinical experience, the dictates of old-time authorities and perhaps the pleas of patients, and led to pay scant attention to the reasoning of the pathologist. Certain it is, we do not always carry to the bedside and operating-room an implicit working faith in these conclusions of the pathologist relating to peritoneal infection. So far as I am able to interpret these conclusions such a faith would lead us to form general ideas of treatment something like those outlined below:

1. Peritonitis is always a surgical disease.

2. The early operation should at all times be the one of choice.

3. Complete surgery promises more than incomplete surgery.

4. The preparatory and after-treatment should include active and effective measures for the reduction of the blood-pressure and increasing the activity of the phagocytic absorptive and eliminative functions, such as restricted diet, active catharsis, diuresis, etc.

5. The small incision, the least possible exposure and handling, complete removal of debris, avoidance of animal ligatures and sutures, perfect repair of peritoneum, thorough flushing and no drainage, are all important factors in securing the co-operation of these natural agencies.

The crucial test of clinical experience may, and probably will, demonstrate that these rules of surgical conduct are not without exceptions, but to my mind they have a sound pathologic basis, and thus far they certainly have proved helpful to me in my practice.

Peritonitis is always of microbic origin, and almost invariably the infection is from a source that can only be removed surgically, as appendicitis or pyosalpinx. Any non-surgical treatment is equivalent to leaving the disease to the unaided reparative efforts of the peritoneum, which, besides the increased immediate risk, always involves peritoneal adhesions, with their evil consequences, and the permanent retention of the original source of the disease, with the ever-present danger of recurrent attacks.

Although the advantages of the early operation are generally admitted, many make exceptions of acute appendicitis and pyosalpinx, through fear of contaminating the general peritoneal cavity with pus known to be exceedingly active and virulent in the early stage; those, however, who have a strong abiding faith in the phagocytic and absorptive powers of the peritoneum, believe that, with favorable conditions provided, it can

nearly or quite always safely dispose of such infection, and that, while the incomplete early operation is not free from danger, the complete early operation is less hazardous than delay. In estimating the advantages and disadvantages of operative measures, we should remember that in these, as in all other infected cases, the two dangers most to be dreaded are peritonitis and septicemia.

Fatal post-operative peritonitis occurs when the peritoneum is already incapacitated by a prolonged struggle with infection, or when the strength of the infection is not sufficiently attenuated, or when from unsuspected or unavoidable sources the microbic foe is being constantly reinforced. Fatal post-operative septicemia takes place, even when the phagocytic and absorptive powers of the peritoneum are in full operation, when pre-existing systemic infection has already taxed the general phagocytic and eliminative powers to their full capacity, and they are unable to cope with the extra burden brought them by absorption from the peritoneal cavity.

By the complete, as distinguished from the incomplete, operation is meant the employment of all the means referred to as necessary to secure the most favorable conditions for the peritoneum to perform its phagocytic and absorptive functions.

Any accidental or intentional, partial or total, neglect or omission in supplying these conditions constitutes (in this sense) an incomplete operation. For example, any but the most thorough and prolonged flushing, that shall not only cleanse the abdominal cavity, but shall evenly distribute any diluted infection that may still remain, over the whole surface of the peritoneum, is incomplete. All operations for appendicitis or pyosalpinx that do not include the removal of all infected tissue and the breaking up of all adhesions, are incomplete. The employment of so good a culture-medium as catgut in wounds where pyogenic bacteria are known to be present, is to my mind inconsistent, and I believe it much safer to trust to the encapsulation of fine sterile silk sutures and ligatures. The use of the drainage-tube means a foreign body in the peritoneal cavity, a producer of adhesions with a certain infection at one end, and a probable infection at the other, connected by a canal with walls of devitalized tissue, and is therefore another and common instance of incompleteness. In short, the complete operation, perfected, is the ideal one from the standpoint of a pathologist, and such a one as those who have an abiding faith in the teachings of pathology will strive to approach, even though unusual obstacles and complications may often render its perfect attainment difficult or impossible.

Time will not permit us to dwell longer upon this subject, nor is it necessary to the accomplishment of the main object of this paper, which is not to propose or support hard and fast rules of surgery, but rather to strengthen as far as may be, the belief of workers in this field, in the doctrine that the teachings of pathology here, as in other parts of the body, must always constitute the foundation of all rational treatment.

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Senn: Surgical Bacteriology.

DISCUSSION.

DR. W. B. DORSETT, St. Louis, Mo.—I have been much interested in the paper of Dr. Niles, but one of the theories advanced by him is not borne out by practice. Flushing of the abdomen is a practice that is not in vogue at present, for the reason that it has been proved of doubtful utility. The distribution of septic material throughout the abdomen is brought about by flushing, forcing septic matter up under the liver, the stomach and spleen, which becomes absorbed very much sooner or much more rapidly than if confined to the pelvis, for the reason that nature has placed in the pelvis lymphatics for that purpose, and the lymphatic distribution is greater in the pelvis than it is in any other portion of the abdomen. Therefore, the theory that is brought out by the pathologist, as elucidated by the essayist, hardly holds good.

DR. W. H. HUMISTON, Cleveland, Ohio—I wish to indorse the paper of Dr. Niles. I was very much interested in it and believe it is founded on correct lines. I believe that clinical experience will fully demonstrate the pathologic side of the question. I wish to emphasize Dr. Niles' position with reference to completed operation. The chances for recovery of the patient are so much greater that the operator must neglect nothing that will give him a completed operation. When you are dealing with pus in the pelvis, use the Trendelenburg position, for with your strips of gauze packing off the upper abdominal cavity, if you should rupture a tubo-ovarian abscess in endeavoring to get it out, there is no need of soiling the peritoneum to any great extent; your eyes control the situation; the omentum and intestines are thoroughly protected by large quantities of gauze, and you will not contaminate the peritoneal ... ity. A year ago, at Denver, I read a paper on drainage, saying that I had practically given it up, and that since I had abandoned it my percentage of recoveries was greater. Now, I do not drain at all, I have not for some time, and do not consider it necessary. In dealing with pus in the pelvis I now make a complete operation, pouring into the abdomen two or more quarts of warm sterilized salt solution, and the patient makes a beautiful recovery.

DR. EDWIN RICKETTS, Cincinnati, Ohio—There is one thing to be considered as having a bearing on this subject, namely, adhesions. It has been my fortune to have opened the abdomen for other causes than those that have been previously mentioned, in some instances by myself, in others at the hands of other operators, and I want to say that too much stress has been laid on this point, and despite all the care that can be made use of, when you go into the abdomen and do the so-called ideal operation you will find there are still some adhesions, although they may not give any serious trouble. For instance, in a case of appendicitis in which an operation was done in accordance with the best rules in surgery, pus was removed, the patient was making an excellent recovery, there was no pain afterward, and yet, on account of an ovarian cyst existing on the left side, the abdomen had to be opened again, an examination was made, adhesions were found, but the patient had not complained of any trouble of that kind.

There is one point I want to emphasize in reference to opening the abdomen, that is, the tendency is to make long incisions, which are detrimental to the patient. A short incision in dealing with a case of peritonitis is better.

DR. W. O. HENRY, Omaha, Neb.—I congratulate the Doctor on his paper; theoretically, it is perfectly sound. Of course, practically we will find at the present time that theory will not always work. In regard to flushing the abdomen, if you have, for example, a case of appendicitis, a pelvic abscess, or a tubal abscess, which has ruptured into the general cavity, so that pus is somewhat distributed, the patient will almost always die unless you flush the abdominal cavity. The flushing should be done thoroughly. One of the speakers made the remark that flushing had been done away with; that is a mistake. The best men to-day flush the abdomen very thoroughly after operations in certain conditions. A mistake is made sometimes in flushing just enough to force material up under the liver and into the upper part of the abdominal cavity, and yet not enough to clean it out. But in those cases where the pus is already distributed over the cavity, unless an enormous amount of saline solution, or sterile water is used, the patient will die, no matter what you do outside of that. By making a free incision first on one side, and then on the other side of the abdomen, and cleaning the pus out with several gallons of sterile hot solution, you will occasionally save a patient. If you save one life out of a hundred you have done something. On the other hand, take cases of appendicitis or of tubal abscess, in which you have opened the peritoneal cavity, you have protected everything except the point of operation, and in emptying the abscess cavity you spill pus on the surrounding tissue—that can be cleaned better without flushing. It would be a mistake in

that kind of case to flush the general cavity. As to the matter of drainage, I believe, as a rule, we should try to get along without it. If the surgical work is done thoroughly and completely, the cavity thoroughly cleansed, a large proportion of the cases that were formerly drained do not need drainage now.

The point which the Doctor made and which I want to emphasize is that our operations should be so radical and thorough as to get rid of everything that might be the cause of trouble in the pelvic or abdominal cavity when we are operating.

DR. FREDERICK HOLME WIGGIN, New York City—Following up the remarks of the last speaker, in a case of a localized collection of pus in the pelvic cavity, I protect the general cavity before breaking up the adhesions by the use of gauze pads, and when any pus escapes from the tube while it is being taken out, a small quantity of peroxid of hydrogen is used, the parts afterward being washed with saline solution. Having found this to be effective, I do not hesitate, and have not for many years, to close the abdominal wound ordinarily without drainage. In a case of appendicitis with a large circumscribed abscess, I would not care to do this. I would, after evacuating the pus, use peroxid of hydrogen, saline solution and a drain. Usually I believe it to be safer not to employ drainage either by the vagina or through the abdominal wound.

As to the matter of adhesions, it is important that every raw peritoneal surface, so far as possible, should be repaired, and it has been my practice for eight or nine years, to try and prevent the formation of intra-abdominal adhesions, by the use of saline solution, that is, after placing the stitches, to flush out the abdominal cavity, and when the fluid comes away clear, to draw the edges of the wound together, leaving from one to two quarts of saline solution in the general cavity, the idea being that the water, by separating the parts mechanically, gives time for the peritoneal surfaces to get in such condition that they will not agglutinate. During the time I have followed this technic, which is since about 1890, I have had no case of intestinal obstruction that I can recall.

DR. H. D. NILES, Salt Lake City, Utah, closing the discussion—Of course, in reading only an abstract of my paper in fifteen minutes I could not expect to get the support of the members on so broad a subject as that of which the paper treats, but ample support for the assertions made will be found in the paper, by those who are sufficiently interested in the subject to read it. I can only refer to one or two points in my closing remarks. If there is any one point of importance in the paper it is that which was referred to by the first speaker, I think, namely, of distributing the infection. I am satisfied that if we get the true idea of the duties of the peritoneum in the presence of infection, we will appreciate the point that a diluted infection, distributed over the whole area of the peritoneum and subjected to its phagocytic and absorptive powers, has a vast advantage over a concentrated infection.

In reference to adhesions, every surgeon will agree that those are liable to occur in extensive operations in the peritoneal cavity; yet if we appreciate their importance and do not make light of them, there is very much we can do that we do not do. I have, as most surgeons have, cases that have died undoubtedly from adhesions; others that may not have died from that cause. It is very essential that peristalsis shall be established as soon after an abdominal operation as possible; it all depends on the regular contractions (peristaltic) of the longitudinal and circular fibers of the intestines, and any constricting band which interferes with peristalsis may prevent or reverse the peristaltic action.

THREE YEARS' EXPERIENCE WITH VAGINAL SUTURING OF THE ROUND LIGAMENTS FOR RETROVERSIONS AND FLEXIONS OF THE UTERUS*.

BY HIRAM N. VINEBERG, M.D.

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It would seem as if there were not anything settled in gynecology. If there was one subject more than another on which it was thought the profession was generally agreed, it was that backward displacement of the uterus was a disease per se, and that it required attention, be it mechanical or surgical. But recently even this subject has formed a bone of contention among gynecologists. After a great deal of thought and energy have been expended on surgical measures for the relief of these malpositions of the uterus, authorities of no mean standing come along and tell us that backward displacement of the uterus is of no consequence, and never of itself gives rise to any disturbances.

The note sounded by one of the most prominent of these authorities[1], and which was considered to be so vital as to be wafted to these shores from a distant land, is to the following effect: Backward displacements of the uterus are of no consequence, excepting to the operator to whom they yield a large and easily earned income; with very few exceptions they never occur but in association with inflammatory affections of the appendages, and it is the latter that give rise to symptoms, and it is they that require attention. It is true, this writer goes on to say, that we possess no reliable means to arrest the progress of these inflammatory affections, but all our efforts are at first to be directed in that direction. Should these fail—as we only too often know they do—the writer promises to tell us what to do in a future communication. As he has neglected to do this thus far he must pardon us if we anticipate his advice. From his leanings and practice we know rather well what it would be: "Do not do anything surgically until all the pelvic organs have become thoroughly disorganized by the inflammatory process; then do a radical operation through the vagina, removing the uterus and adnexa with one fell swoop. In this way you will get rid of the disease and cure (sic?) your patient." This authority has some notable supporters on this side of the ocean who, however, have not as yet communicated their views with such boldness.

In presenting to you an operation for backward displacement of the uterus, I must take it for granted that you do not share the views of the authority I have just quoted, for the limits of this paper will not permit my attempting to combat them. I will assume that you belong to that old-fashioned set of men—to which the writer is not ashamed to claim allegiance—who meet with cases of retroversions and retroflexions of the uterus that *do* of themselves give rise to symptoms, and I will further assume that you are seeking means to rectify the malposition, with the conviction that in doing so you will cure your patients. Any one who has witnessed the almost magical relief he has been able to give a patient by bringing a retroverted or retroflexed uterus into normal position, and keeping it there by pessary or by tampons, will not require much argument to convince him of the entity of the malposition in question. The same individual will also have learned that in some cases a pessary can not be worn, or if it can, it only serves the purpose of a crutch and does not effect a cure.

It is to help us out in this class of cases that we turn to surgery, which has provided us with a number of operations of more or less value. That none of these operations is without some disadvantages must be the excuse for offering you a comparatively new one, but one, however, that has had a fair trial in the hands of the author. In a paper before the American Gynecological Society[2], I stated my reasons for discarding the old operation of vaginal fixation and for casting about in my mind for a new method which would obviate the drawbacks of the former operation, but which at the same time would not do away with any of its advantages.

The advantages are: 1. It is always less objectionable

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[1] Theodor Landau: "Is Retroflexion of the Uterus a Disease? Medical Record, August 20, 1898.

to a woman to have an operation done through the vaginal route than through an outside incision. 2. There is no risk of hernia. 3. It places the uterus in a more normal position, and does not bring it into the abdominal cavity where it does not properly belong. 4. It permits the direct inspection and surgical treatment, if necessary, of the adnexa, which the extraperitoneal suturing of the round ligaments does not. 5. The therapeutic results are more satisfactory than after ventral suspension or after Alexander's operation. The disadvantage is that in case of pregnancy, disturbances during the course of the gestation or at parturition are more likely to occur than after Alexander's operation. This, however, does not hold good for ventral fixation, inasmuch as the risks of dystocia after this operation are equally great if not greater. It occurred to me, therefore, that if I would make use of the round ligaments instead of the fundus uteri to suture to the vaginal wall, I would do away with the feature—the inability of the fundus to rise into the abdomen—that gives rise to disturbances in gestation and labor in the old operation. I was imitating through the vagina what Olshausen[3] had done through the abdomen, and was bringing about a condition, so far as pregnancy was concerned, resembling that which obtained through Alexander's operation in which it was generally conceded that interference with the course of pregnancy or parturition was entirely unknown, or occurred very rarely. The body and fundus of the uterus were merely suspended by the round ligaments, and were left at perfect freedom to enlarge and rise upward in the event of conception.

After an experience of over three years I can confidently assert that my anticipations have been fully realized. In a paper of this length it is not possible to enter into the details of the results obtained. It is my purpose to do this in a more elaborate paper in the near future. For the present I must remain satisfied to deal with my results in a general way. The first operation was performed Feb. 4, 1896. Since then I have performed the operation 44 times. Every one of the 44 patients has recovered from the operation, the recovery being prompt in 41 cases; in 3 cases convalescence was prolonged through the occurrence of a pelvic abscess in 2 cases and an exudate in 1 instance. Even these 3 patients were up and about at the end of three weeks. The ultimate therapeutic results were also good in the 2 cases with the pelvic abcesses; in the one with the pelvic exudate, the patient continued to have some pain, though she was free from pain as long as she remained under observation.

When one reflects that in each instance the peritoneal cavity was entered, the adnexa inspected and frequently treated surgically on conservative principles, the absence of mortality and the very low percentage of morbidity are very gratifying. Some of the operations were done in tenements with anything but sanitary surroundings, others in private houses, and the majority in St. Mark's Hospital. Results of this kind must nullify the criticism frequently made, that the vagina can not be so thoroughly disinfected as the skin of the abdomen. No one could wish to expect any better results through the abdominal route. The bladder was not injured in a single instance. With moderate care there is no reason why this organ should be injured in this operation. For a full description of the technic the writer must refer the reader[4] to the paper already referred to. He may add here that it is not an operation for a novice, as it requires thorough familiarity with the anatomy of the parts and a certain degree of surgical skill. But its therapeutic results are so good that any one who is doing pelvic surgery will be fully repaid by mastering the difficulties inherent to it.

Such satisfaction has the operation given in my hands that were I compelled in a case of retroversion to open the abdomen from above for any reason, I would be tempted to suture the round ligaments to the vaginal walls rather than do a ventral fixation or suspension. I have performed ventral suspension on several occasions, and my results will compare favorably with those of other operators, but in not a single instance have I been as satisfied with the clinical results as with those following the vaginal operation. Almost invariably the patient, after ventral suspension, complained of more or less discomfort for some time afterward, until the adhesion formed with the abdominal wall stretched sufficiently to allow the uterus to drop back into the pelvic cavity. I have been able to observe a great number of cases in which Alexander's operation had been done with an anatomic success. But in a great many of these cases the patients complained for a long time afterward, with a dragging sensation in both groins at the site of the healed incision. The sensation was no doubt due to the round ligaments being put into an exaggerated state of tension. None of these sensations follow a successfully performed vaginal suturing of the round ligaments. The reason for this freedom from symptoms is due to the circumstance that the uterus remains in the pelvic cavity where it properly belongs, and to the fact that the round ligaments are not stretched to an exaggerated degree. So far as the permanent anatomic results are concerned, I can safely assert, after an experience of over three years, that they are equal if not superior to those obtained by the other methods in vogue. I have for several months been able to keep under observation at least 75 per cent. of my cases, and I have so far not met with a single relapse. One of my very earliest cases went safely through a pregnancy and parturition a year after the operation had been done. She got up and was at the wash-tub six days after labor. She has been doing the hardest kind of housework, including washing and scrubbing, ever since. I had an opportunity of examining her a few weeks ago, when I found the uterus in excellent forward position, and the patient entirely free from any pelvic symptoms. Several of my earlier cases are still under observation, a period now of over three years, and in every instance the uterus is in good forward position. I have been told by a colleague that his assistant at the dispensary met with two of my cases in which the uterus was found to be in retroversion. I immediately put myself in correspondence with the assistant, but have not been able to obtain from him the names of the patients, nor the details of the cases. In fact, he did not know what operation had been done on them; whether it was the old operation of vaginal fixation, or my new method of suturing the round ligaments. Until I can obtain satisfactory data I must ignore such information. I state publicly, however, that I will consider it a personal favor to be informed of any failures of my cases that any one may meet. It is only in this way that we can correctly estimate the results of our operative work. But I must be furnished with specific data. The mere statement of a patient that she has had a certain operation done on her, without the confirmation of the operator, is valueless from a scientific standpoint.

[2] Amer. Jour. Obst., July 18, 1897; Trans. Am. Gyn. Soc., 1897.

[3] None of the cases of dystocia was met with in which Ohlhausen's method was followed.

[4] Loc. cit.

When one has had some experience with the operation, the smallness of the vagina is no obstacle to its performance. In fact quite a number of my patients were nullipara and a few of them were virgins. The beginner, however, had better select multipara with capacious vaginal canals. I can usually determine beforehand whether a given case of retroversion, with more or less diseased adnexa and adhesions, is suitable for the operation. Still, in every case I have the patient also prepared for an abdominal section, in the event of meeting with such complications as may necessitate going in from above. In only one instance was I compelled to abandon the vaginal route and complete the operation from above. The obstacle consisted in finding very short and rigid round ligaments, so that the fundus uteri could not be delivered through the vaginal incision. That condition —short and infiltrated broad ligaments—must, therefore, be considered a contraindication. Another contraindication would be very markedly diseased and adherent adnexa. Here, however, in the vast majority of cases a radical operation—total extirpation of the pelvic organs —would be called for, which could be completed through the anterior vaginal incision already made. As a matter of fact, when I purposely set out to do a total extirpation through the vagina, I commence with a longitudinal incision in the anterior vaginal wall. This incision affords more room than a circular one, in addition to the opportunity it affords of getting the bladder and with it the ureters well out of harm's way.

Four of my cases have to my knowledge become pregnant. They all went to full term, having perfectly normal gestations and easy labors. I had an opportunity of examining three of the women some time after the puerperium. The uterus in each case had undergone satisfactory involution and was in excellent position.

As a result, therefore, of my experience, I think I may safely assert that vaginal suturing of the round ligaments is indicated in all cases of retroversion and flexion of the uterus that give rise to symptoms, and in which a pessary for one reason or another can not be worn. The child-bearing period is no contraindication to the operation, as the processes of gestation and parturition are in no wise interfered with thereby. It is also indicated in those cases of backward displacement of the uterus associated with diseased and adherent adnexa of a moderate degree. It permits of the conservative surgical treatment of the diseased adnexa within certain limits, as outlined in the paper.

It is contraindicated in cases with shortened and infiltrated broad ligaments. It is also contraindicated when the adnexa are very markedly diseased, forming a conglomerate mass which is universally adherent. It is further contraindicated in cases of backward displacement of the uterus complicated with an ovarian abscess, or with adnexa which are firmly adherent high up in the abdominal cavity.

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IT IS not often that a man celebrates his silver wedding twice in his life, with a different wife each time, but the *St. Petersburg Med. Woch.* relates this of a Russian merchant who recently died at Belgorod. He is known to have traded at the yearly markets in the Ukraine for over a hundred years, and it is claimed that he was 140 when he died. Two German physicians have recently celebrated the seventieth anniversary of their professional activity, Hochberger of Carlsbad, and Niebergding, in their 97th and 95th year respectively, and Kohlschmitt of Oldenburg looks back over seventy-one years of active professional life.

SHOCK; ITS NATURE, CAUSE AND TREATMENT*.

BY DANIEL T. NELSON, A.M., M.D.

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CHICAGO.

All living tissues, both vegetable and animal, are sensitive to stimuli whether normal or abnormal. In the animal kingdom, especially in the higher animals, certain cells and tissues are specially adapted to receive and convey impressions or stimuli to other tissues and organs. We call these cells and tissues the nervous system and subdivide for convenience into the cerebrospinal system—the brain and spinal cord—and the sympathetic, or ganglionic system. Both are alike in that they connect every cell of the twenty-six and one-half billion cells, which some one has computed there are in the human body—of which three thousand million are nerve cells—with every other cell, and so every tissue with every other tissue and each organ with every other, and thus all into one harmonious whole, when in health. And in disease or disaster this same wonderful mechanism communicates, like our telegraph and telephone systems, the joys or the misfortunes of each cell and tissue to every other, and they in turn respond, as they may be able, for the good of the whole. And it is only when each and every cell, tissue and organ is receiving its normal stimuli and doing its normal work that there can be perfect health.

Every impression or stimulus applied to any cell or tissue which is less than the normal or exceeds it, tends to derange the whole, at least temporarily, and this derangement, slight or excessive, temporary or permanent, is shock, or at least is of the same nature as shock, and it is always instinctive or automatic, whether it is reported by the way of the cerebrospinal or the sympathetic systems. It is always a reflex act and never under the control of the will, and the reason we have been so long comprehending the nature of shock, for it is more than a century since John Hunter first described it in 1784, is because we do not even now fully understand the anatomy and physiology of the nervous and vascular systems and their relation to each and the other systems of organs.

As there is hardly a place in the body where we can insert the point of the finest needle without wounding a blood-vessel or lymph-channel, so will it with equal certainty impress or stimulate the sensitive tissue of a terminal nerve filament, which will at once convey the impression or stimulus to its cell or center, or through a series of ganglia or centers to a center whence it can be reported to the whole body—if of sufficent importance—as in our newspapers during the late war, all printed the news from Cuba and Manila, but the local murders and divorces were told of only by the local press. Important injuries are quickly reported to all parts of the body and arrangements at once made for relief and repair.

Many pathologic processes are simply the result of increased or decreased physiologic activities, and shock is an example of one of these pathologic processes. It is simply the result of exaggerated or decreased reflex activity affecting important organs or systems of organs. In its slighter manifestations it ordinarily does not receive the name "shock," but the terms sympathy, reflex disturbances, etc., are more commonly applied, as for

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example: the tears flow from a cinder in the eye, and pain is produced; increased secretion, and perhaps sneezing from a foreign body in the nose; disagreeable sounds, pain, vertigo, and possibly vomiting by a foreign body in the ear; and spasmodic coughing, frequent attempts at vomiting and great distress produced by foreign bodies in the pharynx or larynx; cough and laryngeal disturbances produced by dyspepsia; the irritation, inflammation and possibly destruction of one eye as the result of injury or disease to the other.

A case of inflammation of the eye is reported as cured immediately by the extraction of a carious tooth, by Schiff of Germany. Prof. Paul F. Eve of Tennessee, suggested the idea of the removal of a carious tooth to Dr. H. F. Campbell of South Carolina, in a case of ophthalmia, and, the operation having been performed, the case was at once cured.

Brown-Séquard, in his lecture on the great sympathetic says: "Sudden death is sometimes produced when ice-cold water is drunk on a warm day; or by a blow on the abdomen, or by the sudden perforation of the stomach or intestine; or a wound of some abdominal viscus (without notable hemorrhage) may produce a sudden and fatal stoppage of the heart's action."

Several cases have been recently reported of a fatal result following a "blow" on the jugular, or below and behind the angle of the jaw, among boxers and prize fighters. Brown-Séquard has also shown by many experiments that a sudden excitation of the abdominal sympathetic nerve often diminishes the movements of the heart and sometimes kills. Individuals frequently become pulseless and often pass into complete syncope from pain in the abdomen, and even death may ensue. Many of you have seen strong hearty men, as well as women, faint from so simple an operation as vaccination. It was also claimed by the same eminent physiologist that the sudden irritation of the branches of the par vagum in the lungs is the cause of death from chloroform in the very rare cases in which the heart's action is stopped before respiration. Death from chloroform is produced in dogs easier than in other animals in this way, namely, by stoppage of the heart's action, but it can not be produced after section of the par vagum.

Extensive burns may also produce a stoppage of the heart's movement. Indeed, he states that deaths from burns are most frequently produced by disease of the cerebral organs; next by diseased thoracic viscera, and lastly, by inflammation of the abdominal viscera. These experiments and statements were made in 1858, before the days of bacteriologic research, and the modern teachings as to the cause of septic inflammations, the order being interference with circulation, stasis, congestion, bacteria active, food for their development, inflammation.

Mr. James Paget, later Sir James Paget, in his lectures on inflammation, in 1850, said that whoever has worked much with microscopes may have observed, as he has on himself, that the eye not employed, becomes inflamed; and he adds that the fact can not be explained except by the supposition that the excited state of the optic nerve of the working eye is transfered or communicated to the nerves of the conjunctiva of the other eye. He thinks that the communication must take place through the encephalon, and therefore, by a reflex action. He says: "I know of a most curious case of inflammation of the cornea and conjunctiva, followed by ulceration and opacity of the cornea, due to that very cause—overwork with the microscope. It has occurred in a distinguished friend of mine, Dr. F——, now professor at Lille. In this case anesthesia and a degree of atrophy of the face were produced at the same time as the ophthalmia, on the left side, the micrographer making use of the right eye." "If I had time," says Brown-Séquard, "I would endeavor to prove that it is not by a reflex action from the optic nerve, but from the filaments of the trigeminal, in one eye, that this inflammation of the other eye has proceeded."

As early as 1851 and 1852 Dr. Brown-Séquard and his pupil, Dr. Tholozan, with Professor Cl. Bernard, had demonstrated the function of the great sympathetic nervous system in controlling the circulation of the blood in the vessels by dilating and contracting them, and so materially varying the vital activity in the organs and tissues supplied by the increase or decrease in the blood-supply. Brown-Séquard and numerous experimenters have demonstrated the fact that any and all causes which increase the quantity of blood in the head, produce nearly if not all the phenomena following section of the cervical sympathetic. For example: the hanging down of an animal, by holding it by its hind legs, by producing congestion of the head, produces very nearly the effects of this section. Does not this explain the ill effects some have observed and reported, of the Trendelenburg position?

If it were important, we might refer to numerous cases reported where sciatica has produced atrophy of muscles of the leg, and pain starting from the cicatrix on the left forearm has caused atrophy of both arms; and injury of the supramaxillary nerve has resulted in atrophy of the face, and atrophy is not the result of paralysis and non-use of the muscles, for many cases are reported in which atrophy occurred before the paralysis or without paralysis and even with convulsions.

Cases are reported where sciatica and various forms of neuralgia have produced anesthesia in near or more or less remote parts; and Gross calls attention to the individual peculiarities; that the prick of a needle and the passing of a bougie have often produced faintness, and the extraction of a tooth has caused death from shock.

While nearly all the writers on shock have recognized the fact that it was produced by reflex action, there has been a variety of opinion as to the nature of the action, most of the earlier writers favoring the idea that it was due to paralysis of the nerve-centers and to their loss of control of the tissues and organs; thus Gross says it is "a depression of the vital powers and essentially dependent upon a loss of innervation," and more especially the loss of the power of the sympathetic system to control of the blood-vessels, a reflex vasomotor paralysis." Warren, in his "Surgical Pathology and Therapeutics," referring to the experiments of Hodge, who found that stimulation of nerve ganglia and glands produced changes in their cells which rest restored, says that fatigue decreased the size of the nucleus and made it irregular in outline, and that it took a darker stain; that the cells of the cerebrum and cerebellum shrank considerably in size with enlargement of the pericellular lymph space; and suggested that a similar effect—though at times more severe—may be produced on the nerve-cells by the injuries which produce shock, and as their normal condition is soon restored by rest, this rest is important in the treatment of shock and suggests its pathology.

Dr. George W. Crile, in his "Cartwright Prize Essay" for 1897, reports a valuable series of experiments on 148 dogs, and carefully records the effects on the blood-pressure in the various central and peripheral regions.

and upon the heart's action and respiration. The dogs are of various kinds and sizes with varying degrees of health and strength, and different degrees of shock are produced by operations on the external parts and organs as well as the internal viscera. The experiments were all made under anesthesia, mostly ether, and consisted of cutting, tearing, crushing, bruising, sawing, puncturing and burning almost every tissue and organ of the animals. Numerous experiments were also made by fractures, stab wounds and gunshot wounds of the thorax and its viscera, and likewise of the abdominal and pelvic walls and their contents, and the effects of the "shock" carefully recorded by modern instruments. I can give but a very brief outline of the results as he records them in his interesting and suggestive essay. He enumerates as factors causing shock: 1. The duration of the operation. Animals may be killed by prolonged anesthesia alone. 2. The temperature of the operating-room and of the salines and other solutions used as a local application or venous injection. 3. The physical condition of the animal, whether strong and in good health and flesh, or poor and weak. 4. Great care had to be exercised not to give too much of the anesthetic—ether and especially chloroform when it was used, chloroform being the most toxic. 5. Hemorrhage always predisposed to shock, especially when severe and venous, the venous producing more severe results than arterial. But care was usually taken that there should be as little hemorrhage as possible. 6. The vasomotor system is most profoundly and constantly affected in shock, and the regions most abundantly supplied with the vasomotor nerves were naturally the most affected, and no part of the circulatory apparatus was so delicate and its connection with all parts of the body so minute and its equilibrium so easily disturbed as the vasomotor; and the injuries produce shock in proportion to their severity and the duration of their application. 7. The heart's action was the chief support for blood-pressure, and it continued long after vasomotor rhythm and pressure was lost, and even after respiration ceased. In almost all the deaths respiration ceased before the heart's action. At the post-mortems, the large venous trunks were full, sometimes enormously engorged; arteries empty, as also the left auricle and ventricle empty or nearly so; the right auricle and ventricle contained some blood; pulmonary vessels empty; tissues of brain and the somatic area anemic; liver usually engorged; spleen and kidneys somewhat less so.

Crile, in his valuable series of experiments, has conclusively shown the first and most constant effect of shock is to contract arterials and so lessen the tendency to hemorrhage, if threatened, and this engorges the veins, especially the larger ones, and increased venous pressure increases the output of the heart, and so the supply of blood to all the tissues for their nutrition and repair.

Reflex action in the physiologic and pathologic conditions is then of the same nature as shock, differing only in the suddenness, severity, extent and continuance of the impression or stimulus.

If then, the estimate is correct, there are twenty-six and one-half billions of cells in the adult human body, all susceptible to stimuli, normal and abnormal, because they are living, and of these there are three thousand millions of nerve-cells with their fibers and filaments, whose duty is to connect each one of these cells more or less intimately with all the rest in one wonderful and fearful whole. In health each one, in the words of another, "eats, grows, reproduces and has motion" or function, each has its normal stimulus and function, and if the action of any of these is excessive or deficient, derangement, disease and perhaps death of the whole follow. And any unnatural or abnormal impression or excessive stimulus made on any one or any number of these billions of cells, is or may be communicated to many or all the rest, by the three thousand millions of nerve-cells with their connecting fibers and filaments.

A relatively sudden impression or stimulus, severe enough to derange or disorganize, we term shock. It ordinarily primarily affects the vasomotor system—the automatic system—contracting the arterioles, lessening the arterial blood-supply to all the tissues and disturbing their nutrition. The veins dilate from the *vis a tergo*, the heart increases the force of its beat and the output of blood is increased and respiration deepened; but soon reaction occurs, the arterioles and veins dilate, there is a stasis of blood, the nerve-centers, which preside over the respiratory process, fail to get their appropriate nourishment, respiration becomes irregular and shallow, the heart soon feels the influence of its own disturbed nutrition and innervation from the primal cause and the imperfect respiration.

Shock, then, is due, as we believe, to a stimulus or impression being conveyed automatically by afferent nerves to nerve-centers, whence they are sent by efferent nerve-fibers to the vasomotor apparatus, controlling the function and nutrition not only of the lungs and heart, but of all the organs and tissues. The rhythm of nutrition is disturbed, growth and decay—metabolism—are interfered with. Rest may bring recuperation and renewed life, if function and nutrition return, and the vasomotor nerve-centers resume their command of the vascular system. Respiration slowly returns to its important duty, the heart sends the blood to carry to all the tissues their necessary food and remove their effete material, and life, health and vigor are again established.

But if the shock to the vasomotor centers has been too great, rest and treatment will not enable them to recuperate, and the lungs and heart will not receive their necessary stimulus nor blood, and death and disintegration must soon follow.

If now, the nature and cause of shock has been made at least somewhat plain, the treatment will be readily suggested.

1. Preventive: When we can anticipate the coming danger, the best preparation is in the perfect health and normal working of all the organs, a perfect balance in absorption, assimilation, metabolism and excretion—all the vital activities.

2. Hemorrhage, so far as possible, is to be prevented or reduced to a minimum, for loss of blood lessens vital activity and especially weakens the vasomotor system, on which life so much depends.

3. Temperature: For the normal activities of the human body an internal temperature of from 100 to 110 F. is required, and this temperature is normally maintained by the molecular changes in the tissues. When these changes are diminished or reduced to a minimum, the abstraction of heat by exposure must be avoided and artificial heat supplied so far as possible.

4. Therapeutics: Atropin, cocain, morphin and alcohol, used hypodermically and by the mouth, have had their advocates for the prevention of shock, and all probably have a certain efficiency in suitable cases; atropin by supporting the heart's action, and cocain, morphin, alcohol and other anesthetics by lessening the sensibility of the nerve-centers and the conducting power of the nerve-fibers, prevent the reflecting of impressions on and

injuries of sensitive nerve-fibers as widely or as in their natural state.

TREATMENT.

1. Quiet, rest in the horizontal position and artificial moist heat have long been recognized as valuable means of restoring the lost tone to the vasomotor system.

2. Lower the head enough to make gravity aid in furnishing sufficient blood to nourish and excite to proper function the important reflex centers of respiration and the heart's action in the medulla, as well as the visceral ganglia in the lungs and heart themselves.

3. Experiments have conclusively shown that while shock first affects the vasomotor system, respiration is early impaired or stopped some time before the heart's action is seriously deranged or stopped, and, therefore, artificial respiration may be the means of continuing life by furnishing oxygenated blood for the vital centers in the medulla. The inhalation of oxygen is likewise indicated for the same purpose.

4. The interstitial and intravenous injection of the warm salt solution is perhaps our most efficient, certain, powerful and lasting remedy, particularly when there has been hemorrhage, and when the case is not specially urgent the same solution may be efficient when introduced into the stomach or rectum, and when convenient the peritoneal cavity may be used for the same purpose.

5. The therapeutic remedies are all those which will restore the tone of the vasomotor system and support respiration and the heart's action. Of the many drugs which have been recommended and used, strychnia probably claims, rightfully, the most friends, used in the way the operator deems best to reach the circulation and so the nerve-centers; next digitalis and strophanthus, nitroglycerin and ergot in appropriate dose, and lastly the various glandular extracts, as of the suprarenal, thymus, thyroid, mammary and parotid glands[1]. Of these the extract of suprarenal capsule in 5-gr. tablets[2], internally, also locally and hypodermically, is the most in favor at present, as a vasomotor and heart stimulant.

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THE RECONSTRUCTION OF THE PELVIC STRUCTURES INCIDENT TO LESIONS OF PERINEUM*.

BY HENRY O. MARCY, M.D.

BOSTON.

When in London some time ago, the plastic repair of the pelvic structures was under discussion. One of the most distinguished surgeons said to me: "You will at least grant that we have settled upon the better methods for the restoration of the perineum," and yet, on further inquiry, I found that he advocated his own peculiar operation as the best, and disagreed with every other writer on the subject. I am quite sure that the methods in practice by distinguished operators differ essentially, both in principle and technic, and that which is of the most importance, the resultant, is often defective and unsatisfactory. I can not help thinking that this is due primarily to an imperfect knowledge of the structures and functions of the parts involved. Of the structures, the anatomy of the pelvic floor in woman has very generally been imperfectly described and studied.

I review my own publications on this subject with more than ordinary satisfaction, since they may be considered as progressive phases in the study of a problem which has occupied more than an ordinary share of my attention for a number of years, and to what I now offer, although perhaps not conclusive or final, I invite your consideration and earnest criticism.

All good surgery must be based on a thorough knowledge of anatomy, and while this is essentially true in the consideration of every operative measure, as for example, the resection of a bone, or the ligation of a vessel, it is especially to be emphasized where the avowed object of the operator is the restoration of the injured parts to their original normal condition.

The surgical anatomy of the male perineum may be said to have been practically demonstrated, and the subject long since exhausted. It is a *sine qua non* to the graduation of every medical student, and properly so, because of the importance of such knowledge in the practice of every-day life; but if this is necessary to the proper consideration of diseases of the male, how much greater the need of a familiar and accurate understanding of the pelvic organs, their relationship, and supports, in the female!

Here, in addition to the lower segment of the alimentary canal and its outlet, the position and retention of the bladder with its efferent passage, are placed the complex organs of reproduction, which necessitate a third and the largest of the openings through the pelvic floor. Not alone should this give additional interest and importance to the careful study of the female pelvis and its contents, when in the exercise of the ordinary functions of life, but especially when we take into consideration the physiologic changes occurring during pregnancy and parturition—conditions so important and which occupy so large a share of the attention of the profession and often demand from its members the exercise of the highest skill and ability. If, happily, the recovery from parturition renders danger to life no longer imminent, nevertheless every practitioner listens to the almost daily complaint of suffering dependent on injury to the parts involved and the reflex disturbances resulting therefrom.

The comparison of the component structures of the male and female pelvis shows a closer analogy than is at first apparent. The levatores ani in the male are inseparably blended with the sphincter ani. The transversi perinei join in a central tendinous line with the levators and sphincter in front of the anus; and anteriorly, between this point and the accelerator urinæ and erector penis there exists an irregular space, floored by the deep perineal fasciæ, called the triangular ligament of the urethra. This corresponds to the vaginal opening in the female. The accelerator urinæ, or ejaculator muscle, separated in the median raphe, is not very unlike the sphincter vaginæ muscle. The erector penis and erector clitoridis are similar in position and function. The transversi perinei are placed more obliquely in the male than in the female, and are often less well developed.

The depth of the perineum is less than usually described. The axis of the anus, cutting that of the vagina at nearly right-angles, leaves, in the external angle, an irregular flattened portion of tissue rarely, when examined on the living subject, more than one-half an inch in thickness. In the nulliparous woman this is clearly defined as a firm portion of the pelvic floor, and is composed of skin, fat, elastic and connective tissue, transverse muscles, sustaining fascia, and the anterior portion of the sphincter ani.

The vaginal side is usually slightly concave, and the rectal side convex, owing to the interblending of the sphincter ani. If the finger be carried just within the

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[1] Dr. J. B. Stober, Am. Jour. Obstetrics, September, 1898.

[2] Dr. W. H. Bates, Medical Record, Oct. 8, 1898.

*Presented to the Section on Obstetrics and Diseases of Women, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

perineum proper and a little to one side, there can be felt the firm encircling band of the levator pubo-coccygeus, attached to each ramus of the pubis above and descending to join with the posterior fibers of the sphincter ani and coccyx. In the perineum posteriorly this is firmly interblended on either side with the transversus perinei muscles. These are under the control of volition in considerable degree, and acting conjointly, serve to draw the vagina forward on to the pubis.

The parturient and fecal canals are supported in the pelvic basin in close apposition, and the functional relationship is often such that the one may encroach on the other in such a way as to occupy nearly all the space accorded to both. This is especially true in parturition, when the rectal space is reduced to a thin folded tube; and often in elderly women who have borne children, the rectum becomes saccated, pushing forward the posterior vaginal wall, forming a considerable sized external tumor. The pelvic floor is so formed and blended about these openings that it not only properly supports the vagina and rectum, but materially aids in their physiologic function. In intimate relation to both are the bladder and uterus in their ever-varying functional activity, and each is surrounded by a delicate plexus of nerves and vessels.

The sacral prominence throws a large proportion of the abdominal weight on the symphysis pubis and the recti muscles, in the support of the body, and thus relieves the pelvic basin and takes off undue strain on the pelvic floor. The rectum is rarely entirely empty, is circular in shape, serves the digestive apparatus in a measure as a constantly receiving reservoir, and, when not distended, may be felt from the vagina, as a rule, curving posteriorly. It is suspended and supported, slung, so to speak, by the levator ani muscles, which holds the vagina in their encircling loop. On the contrary, the vagina, entirely unlike the earlier diagrams, is flattened antero-posteriorly on itself, and in health its walls are, when at rest, ever in close apposition. The vagina joins with the vulva at right-angles to its lateral opening at the entrance of its passage through the pelvic floor. The vulvar organs are all intimately blended with, and go to form a part of the perineum proper. On each side of the vaginal orifice are the erector clitoridis, the bulbo-cavernosus, and the transversus perinei muscles, and these with the levator ani make up, in large measure, the pelvic floor. The bulbo-vaginal and Bartholinian glands are covered by these muscles with their erectile plexus of vessels and abundant distribution of lymphatics and nerves.

The erector clitoridis and bulbo-cavernosus muscles with the transversus perinei join on each side to constitute the ovate, muscular vaginal orifice and, in their conjoined action, perform a very important physiologic function in sexual congress, often underestimated or ignored. Their impaired function frequently underlies certain reflex nervous conditions, distinctly pathologic, which are easily overlooked, but are the cause of much suffering and unhappiness.

The much discussed, so-called perineal body has, in my opinion, misled some of our prominent authors into false positions and caused great confusion and misunderstanding among physicians. I have been criticised, in emphasizing the muscular floor of the pelvis, that I underestimate the importance of the variously distributed connective tissues and fascia. This is not by any means my intention. The superficial perineal fascia, in its deep layer in the male, as well as in the female, covers and encloses the transversus perinei muscles, forming strong ligamentous transverse bands, uniting in the perineum, designated by Savage as ischio-perineal ligaments. The transversi are much more developed and cross the pelvic opening nearly at a right-angle to a line drawn from the symphysis to the coccyx. At their central point of union they interdigitate or blend with the fibers of the levator loop in the posterior vulvar region, and go to make up the central point of support in the floor of the pelvis. These muscles are interwoven and surrounded, reinforced as it were, by very considerable bundles of connective tissue. The method of the interweaving of these structures is worthy of special mention, since it is only possible to secure elasticity of this strongest component of the human body by the interweaving of its fibers diagonally. I do not know that this fact has been brought into special emphasis by any one, but its importance is at once apparent and has an illustrative example in the connective sheath of the intestine, where the crossing of the connective-tissue fibers diagonally permits of the shortening of the intestine, as in peristalsis, and its very considerable dilatation entirely within normal physiologic function. If, on the other hand, the connective-tissue fibers were arranged for strength only, as in the tendons, elasticity would be almost entirely wanting.

The pubo-coccygei, acting in unison with the other muscles of the pelvic floor, draw forward and thus aid not only in closing the rectum, but hold both it and the vagina in the anterior curve so important to be retained for the preservation of normal function. A horizontal section, made through the floor just above the sphincter vaginæ and posterior to the junction of the transversus perinei, shows the deeper fibers of the pubo-coccygeus, united in a loop behind the lower border of the rectum, holding it from the fixed point at the pubes as in a sling. This loop is connected with the transversus perinei, bulbo-cavernosus, erector clitoridis, sphincter vaginæ and sphincter ani muscles by strong layers of connective tissue, the importance of which for union and support cannot be readily overestimated.

On the posterior wall of the vagina, in its lower third, longitudinal muscular fibers are found external to the circular layer, and these intimately blend with the pubo-coccygeus, giving a firm support to the vaginal outlet quite as the outer longitudinal fibers of the rectum unite with the deep layers of the sphincter ani. The physiologic action of the muscles thus grouped serves to draw the rectum forward toward the pubic arch and approximate it in close relation to the urethra, and this explains, in large degree, why the circular fibers of the vagina, left free to act in other directions, are intrafolded laterally, making in cross-section an imperfect letter H, first pointed out by Freund. This intrafolding of the vagina at right-angles to the axis of the vulvar outlet is very important in its relationship of support to the uterus and its appendages.

The vaginal axis is normally about parallel to the conjugate of the brim. The anal axis is nearly at right-angles with the vagina and on a line with that of the uterus. The urethra, vagina, and rectum are disposed in curves corresponding to the sacral line. Architecturally considered, these are the lines and disposition of supports adapted to give the least outlay of power to retain the organs in position. This is the more to be emphasized, since the physiologic function demands mobility of the organs in conjunction, and also each independent of the other. Viewed from this standpoint, a still further analysis of the vagina as a column of elastic support to the cervix uteri is of interest and importance.

We have already observed that the circular loop of the muscular fibers of the pubo-coccygeus, posterior to the anus, carries the rectum forward on to the vagina and changes the vertical vulvar outlet into an antero-posterior closure of the vaginal canal, and that this is again thrown into two lateral folds. The longitudinal muscle fibers external to the vaginal muscle and which extend, both in front and behind the vagina, along the distal third, are the chief causes in producing this intrafolding, constituting in large degree the so-called columnæ rugarum. The letter-H shape, thus given to the vaginal column in section is well known in the arts as the form adapted to the resistance of vertical weight. This elastic column, retained in its shape and position by its basic bulbar and perineal support, is blended in its upper border with the cervical tissues. The union thus made with the uterus is nearly at right angles to the vagina and serves to hold the lower segment of the uterus backward, retaining that organ, like a ship at anchor, swung on its lateral supports, with freedom of mobility at its moorings. This vaginal support to the uterus is so effective in the normal condition that the cervix uteri is rarely displaced without there first ensues a change in the vagina. Although there are exceptions, of which the scope of this article will not permit the discussion, the general consensus of medical opinion is that the changes which occur in the vagina usually commence with those lesions of the outlet and contiguous tissues dependent on parturition.

A weakness in the base of support, the change of muscular action which causes a drawing upward and backward of the posterior vaginal wall, with an eversion of the vulvar outlet, produce a change in the axis of the vagina, bringing it and the uterus toward a common plane, and then the cervix, instead of being held at right-angles to, becomes a wedge in line with the vaginal outlet, separating its walls.

This change in the position of the uterus causes the weight of the abdominal contents, deflected toward the pubis, no longer to fall on the organ posteriorly, but vertically, and little by little, following the sacral curve in its descent, prolapsus with varying degrees of retroversion ensues.

Another anatomic fact, not usually taken into consideration, is the structure of the vaginal tissues and the relation of the vagina to the pelvic floor. The vaginal muscle is attached to the perineal structures normally only by a very loose interlacing of connective-tissue fibers, and at its vulvar junction is posteriorly folded in on itself not unlike the sleeve of a coat, except that it is fitted to an elastic opening. A little fold of this tissue posteriorly constitutes the more or less pronounced hymen.

I have deemed it necessary to emphasize thus much the anatomy and physiologic function of the pelvic structures in woman, in order to make clear the anatomic type which the surgeon must aim to secure in the reconstruction of these tissues, more or less damaged in parturition. Even in an article of the present brevity, we must take into consideration the pathologic conditions which demand restoration. An elastic opening, which is too small normally to permit the passage of a body, must yield by lesion. Many of the minor tears, however, of the perineum, are undoubtedly produced by the still prevalent custom of "supporting the perineum," which generally means a pressure from below upward, preventing the downward descent of the fetal head, in order to permit the escape of the occiput beneath the pubic bone. Naturally the tissues will yield where the tension is greatest, and this may be central or lateral, and may extend through the sphincter muscle into the bowel.

Generally the first important structure to yield is some point near the central union of the transversi muscles, and then the vaginal and vulvar structures rarely escape injury. The resultant is an injury and widening of the levator loop, and the drawing to either side by the sundered transversi toward their respective origins. If the sphincter ani has not been injured, by a slow process, a rectocele almost necessarily follows. If the sphincter is torn through, as might easily be inferred, the pouching of the bowel can not occur and, as a consequence, the uterus is less likely to be displaced.

Intelligently conducted operative measures are undertaken to restore the structures as far as possible to their normal standard. With this problem before the operator, it would not seem difficult to make the procedure definite and comparatively simple. In a paper read before this Section some years ago, on this subject, I threw on the screen about fifty photographic illustrations, in order to enable my audience to follow intelligently with me the different methods devised for the surgical repair of these lesions, and yet I am sure I did not include all, while many have been added to the list during the intervening years.

The first great point of difference lies in the selection of the operative field; shall it be *on, through,* or *behind* the vagina? This opportunity does not permit a differential discussion of the question, but since the vaginal structures do not enter into the formation of the pelvic floor, it would seem wise to eliminate them as far as possible from the problem. To dissect them entirely away with a portion of the injured vulvar structures, as is the more common custom, is unwise, since they should be preserved for important physiologic purposes. To preserve them intact seems rational, since they are thus less injured and serve the subsequent important purpose of protecting the wound from infection. In order best to do this, the dissection is carried through the cicatricial tissue laterally to the point on either side which marks its former attachment, and upward through the loose connective-tissue, post-vaginal attachment quite to the crest of the rectocele.

This vaginal flap is lifted forward by an assistant, and on examination the fibers of the levator loop are easily demonstrated. A careful inspection of the vagina before operation will enable one to detect a depression on either side, which marks the site of the separated, contracted transversi.

It is generally wise to extend the incision posteriorly on each side to the level of the anterior border of the anal opening, and laterally on either side by reflecting a small portion of tissue. The limit of this dissection is determined by the depth of the sulcus or depression, which is usually found posterior to the vulvar organs. This makes a wide, open wound which permits of the careful readjustment and reunion of the injured parts.

In this way only can the surgeon intelligently restore these structures to their former normal relationship. If this has been aseptically performed, and the aseptic condition maintained, primary union will supervene with complete restoration of function.

Thus briefly have I outlined what I consider to be the essentials of the operation. Technic may and should vary with different operators, since a man does his work best in the way most familiar to himself. This permits

a somewhat wide digression as to variety of method. As ordinarily attempted, the dissection is not easy and is greatly facilitated in the following manner:

An assistant on either side separates the vulvar opening, while the operator introduces two fingers of his left hand quite into the rectum. Anterior to the anus, a slight opening is made through the structures thus held tense, into which a knife with a small rounded end, obliqued to an angle of about 40 degrees on a firm handle, is introduced. Force applied in the line of the handle brings the cutting edge to an angle with the structures to be divided, and they are thus separated with ease and accuracy. After the cicatricial structures are divided, the right and left angled Emmett curved scissors are introduced to complete the external incision. Then the division of a few bands with the scissors will permit of the anterior lifting of the vaginal sheath and the operator for the first time is surprised at the ease with which the further separation to the crest of the rectocele is effected, often by the thumb and finger alone. By the aid of the fingers retained in the rectum, the bowel is protected from injury and, once inserted, the surgeon retains them there until the operation is completed. To me the *sine qua non* of the operation is the buried suture, and only by its use can a readjustment of the parts be accurately effected. Many surgeons prefer a curved needle and continuous suture. By means of this a lacing stitch can be applied from side to side for coaptation.

However, I still greatly prefer the needle fixed in a handle with large curve and eye near the point. The introduction of the first stitch is the most important. It must include the retracted end of the transversus in its association with the displaced levator loop. This being effected on one side, the suture is made to penetrate the junction of the vagina and rectum at the crest of the rectocele, and is carried across to include the transversus on the opposite side. The loop of the suture held by an assistant, the operator easily approximates the parts with it, and three or four continuous double stitches, taken in this way—Marcy's stitch—reunite the most important structures. A fine continuous suture, introduced by a full-curved Hagedorn needle, renders it easy to make complete deep coaptation of the surfaces laterally, while every stitch is buried in healthy structures. Even here we find the collodion seal is of value and makes an impervious dressing for one or more days. As soon as it is loosened, it should be removed. A light dusting with iodoform is the only subsequent dressing needed. In this way it is easy "to build out" the structures so that the depression posterior to the vulva disappears. The folding of the vagina anterior to the wound frequently results in a thin membraform wall closely resembling a slightly ruptured hymen. Months later it would indeed be difficult oftentimes for an expert to determine that the woman were not a nullipara.

When the rupture is complete, that is involving the bowel, the essentials of the above operation still pertain. The dissection anteriorly differs only in that there is a central rent through the separated vaginal sheath; posteriorly, in that the rent includes the sphincter ani and extends in a greater or less degree up the rectum. The dissection here must be continued farther down on the sides of the anal opening in order to reach the retracted ends of the sphincter muscle. The vaginal rent is united by a buried continuous tendon suture, introduced from side to side on its dissected surface, the end of which is for a time left long and given over to the care of an assistant. In the same way the edges of the injured bowel are restored, and thus we reduce the conditions to those pertaining to an incomplete rupture of the perineum. The remaining steps in the operation are the same as already described, with the exception that care must be taken to reunite the sphincter ani muscle.

Vagino-rectal fistula is fortunately much less often seen now than formerly, and yet when it does occur, even in the hands of our best operators, it proves one of the most troublesome conditions for cure. For many years I have treated it by the lateral separation of the structures as above described, closing the vaginal and rectal openings separately. Oftentimes, when comparatively little tissue is left, it is easier to divide the sphincter and intervening parts centrally to the fistula.

Following the description of this operation, one might at first infer that it was difficult and tedious. As a matter of fact it is simple and rapid, often completed within fifteen minutes. The convalescence is easy and rapid with very little suffering. I prefer that the urine should be drawn with a catheter during the first three or four days, and that hardened fecal masses shall not be permitted to accumulate in the lower bowel. In securing primary union, much depends on the subsequent care of such a patient by the nurse.

The operation is also a test of the surgeon's ability to make and maintain an aseptic wound in this, one of the most difficult parts of the body. Failure to secure good results under the proper care is the exception and is rare. I have operated several hundred times by this method. Recently I inquired of the head nurse in my hospital, "how many failures to secure a good perineum have occurred since you have been with me?" With seeming surprise at the question, she replied, "Not one," and she has had supervision of my work uninterruptedly for the last thirteen years.

In a paper[1] published ten years ago, on the repair of the perineum, I closed with the following as the essentials of my method:

"1. The dissection of the posterior third of the vagina, *not in its mucous membrane*, from its vulvar attachment, carried as deemed necessary into the recto-vaginal space, and the *retention* of this flap.

"2. In lifting forward the vagina from its vulvar attachment, the retracted transverse perinei muscles with their connections are reached and reunited by deep buried sutures, making in this way a true restoration of the pelvic floor.

"3. In rectocele with prolapse, the closure of the deep layers of the post-vaginal fascia by a continuous buried animal suture, taken either in single or double line of stitches.

"4. The coaptation of all superficial surfaces by a buried animal suture, applied as a continuous stitch, taken from side to side, covering the wound, when dry, with iodoform collodion.

"5. In rupture involving the sphincter, the lateral dissection, the joining of the rectal and vaginal edges with buried sutures, and then finishing the operation as in incomplete rupture."

I consider the closure of wounds aseptically by the buried animal suture, preferably tendon, my best contribution to surgery, and its application to the plastic repair of the pelvic structures is second in importance to few other operations.

[1] "The Perineum, Its Anatomy, Physiology and Methods of Restoration After Surgery." Reprinted from Trans. Am. Assn. Obst. and Gyn., September, 1898.

CASE OF URTICARIA PIGMENTOSA FOLLOWING CHICKEN-POX.*

BY ALBERT WOLDERT, M.D.

PHILADELPHIA.

The patient, a male child 11 months of age, of English parentage, was presented for treatment at St. Joseph's Hospital on May 10, 1899.

Family History.—His father and mother are living and in good health, and there are eight other children all of whom have been entirely free from a rash of the character hereafter described. The father and mother have never suffered from a rash of any kind, with the exception of prickly heat, and both seem to present a history free from specific disease.

Personal History.—The child was born at the eighth month of gestation, there being a hard, dry labor, and version was done. The patient has been fed on the breast, has never suffered from a rash or disease of any variety until he had the chicken-pox when 3 months of age. At the time he became ill of this latter disease an

FIGURE 1.

epidemic of the affection prevailed in the immediate neighborhood. The varicella first developed on the legs, the body, face and hands subsequently being affected. This rash of varicella was first manifest by the appearance of small reddish spots which soon became vesicular, followed by crusts and whitish scars. The duration of the chicken-pox was about two weeks.

Present Illness.—About one week after the rash previously mentioned had disappeared, the mother observed some reddish blotches (which she states were not elevated) on the anterior surface of the chest. When these reddish blotches were first discovered, an area, probably the size of the hand, had been involved. Within a period of about four days from its discovery on the chest a similar eruption became prominent on the abdomen, and several days later was detected on the anterior surface of both thighs, and within an equal length of time the anterior surface of both legs had been invaded. After the rash had spread over the legs anteriorly, and at about the same time, a few reddish spots were noticed on the back of the neck, and within one week had spread over the entire dorsal region of the chest. Two weeks later the calves of the legs became affected. The face and scalp have been free from the disease.

Within a period of probably one week subsequent to the observance of the eruption on the anterior surface of the chest, the area first involved began to turn brownish in color, while the affected portion of the abdomen was yet reddish. Within a week after its first appearance on the abdomen this area became brownish, as did the legs. On the dorsal region of the body the rash pursued the same clinical course in that the affected portion of skin first assumed a reddish tint, followed within a few days by a brownish one and at the end of eight months may be observed at this time.

When the eruption first made its appearance, according to the mother's statement, it was not elevated but in the form of distinct blotches, probably half an inch in diameter, and bright red in color. These spots were discrete in form. Whether itching was present or not in the early stages is not known, but at the present time it possibly possesses this character.

At the present time the rash may be described briefly as follows: Over the entire body of the child, except the face and scalp, there exists a light brownish or salmon-colored rash, maculopapular, or perhaps taking the character of wheals, which are found to be both discrete and confluent in form.

RECAPITULATION.

If the clinical history be correct, we have here a disease of the cutaneous surface, which first made its appearance on the anterior surface of the chest, subsequently on the abdomen, later on the legs anteriorly. After it had traveled over the front of the body the dorsal surface became affected in like manner. In both instances the rash developed above and extended downward.

The points of special interest in the case seem to be its rapidity of development; that it is not markedly itching in character; that the lesions are but slightly elevated; and its predominating tendency to become confluent.

According to Dühring, under this name "Urticaria Pigmentosa"—the following description is given: An unusual form of urticarial disease has been described, characterized by the formation of pinkish, reddish, yellowish, salmon or fawn-colored wheals, to be sooner or later succeeded by yellowish, reddish, olive-green, or brownish pigmented spots. The skin is generally sensitive and irritable, often highly so, the least excitement in many cases occasioning turgescence of the lesions with a variable degree of itching and burning. The disease is usually chronic, lasting an indefinite period, ordinarily over a period of years. It may be mistaken for urticaria, for the erythematous and papular syphilodermata, and especially for the macular or tubercular form of xanthoma. It is also to be distinguished from pigmented nevi.

Cases of urticaria pigmentosa have been reported by Nettleship, Morrow, Goodhart, Barlow, Fox, Stelwagon, Elliott and others. According to Stelwagon, up to this

*Read (by invitation) before the Philadelphia Pediatric Society, June 13, 1899.

time about sixty cases have been reported. In his experience of twenty years he has seen three cases.

Symptoms. (Dühring).—The disease usually begins in the early months of life, during the first year. It occurs on the general surface, and in most cases is extensively distributed and profuse. The lesions are most numerous on the trunk, and next on the limbs, but no region is exempt. Wheals, maculopapules, papules, or nodules, pea, coffee-grain, or almond-sized and shaped or irregularly rounded, appear. The form rapidly or gradually, generally disseminated, but sometimes somewhat grouped. To the finger they feel considerably tougher than normal skin, and they do not fade on pressure. On handling they incline to become urticarial and redder. New lesions appear from time to time, the earlier ones undergoing involution in a variable manner, as a rule slowly. Itching is a prominent symptom and may be distressing on account of its persistence. But itching is a variable symptom and may be absent altogether.

FIGURE 2.

Etiology.—The cause of the disease is obscure. Its relations to true urticaria are not clear. Stelwagon believes that in the early stages the disease is essentially an urticaria, the subsequent peculiarities being due to secondary changes in the lesions.

Pathology.—According to Raymond there may be found, in the first stage, large granular cells in rows, in the corium, and a few hematin crystals in the papillary layer. Later the granular cells break down with the occurrence of more numerous crystals of hematin.

The granular cells are associated with connective tissue to which is probably due the peculiar color of the lesions. Other observers have also noted the marked cellular infiltration which has been shown by Unna to be a collection of very large flattened "mastzellen."

Treatment.—In the cases recorded varied treatment had been employed. Atropin and pilocarpin have proved two of the most useful remedies. An ointment composed of naphthol, 30 to 40 grains to the ounce, weak sulphur baths, and the application of a weak solution of Fleming's solution have been recommended.

The author desires to tender thanks to Dr. Stelwagon for the courtesy of using the original photographs of his cases in order to elucidate the text of this article, and also to Dr. Dühring for favors.

REPORT OF CASES OF PULMONARY TUBERCULOSIS, TREATED WITH INTRAPLEURAL INJECTIONS OF NITROGEN, WITH A CONSIDERATION OF THE PATHOLOGY OF COMPRESSION OF A TUBERCULOUS LUNG.*

BY A. F. LEMKE, M.D.

CHICAGO.

(Continued from Page 963.)

CASE 3.—Mrs. L. V., aged 48, was examined September 3. There had been no tuberculosis in her family. She has coughed and expectorated profusely during the past year. She is pale, anemic and considerably emaciated. There is an extensive tuberculosis over right upper lobe, and bacilli in sputum. September 9: Attempted injection of nitrogen; pleural cavity obliterated by adhesions; the needle entered the lung tissue and there was blood-streaked sputum for a short time after the puncture.

CASE 4.—Mr. W. H., aged 20, was examined September 3. His mother died of tuberculosis at the age of 32; he has coughed about 4 years; has afternoon elevations of temperature and occasional night sweats. Examination shows that he has a good physique; face flushed; temp. 101 F. in forenoon. There is an area of dulness over the right apex. There are numerous râles over this area and some crepitant and submucous râles are found scattered over the entire right lung. The left lung is negative, except for a few scattered dry râles. His weight is 147 pounds; maximum weight 158 pounds.

September 3: 158 cubic inches of nitrogen was injected into the right pleural cavity. All the signs of pneumothorax were present. Patient expects to change climate after the injection.

Oct. 5, 1898: Patient states that during the three weeks following the operation he felt very much improved; cough diminished; no night sweats; has gained two pounds in weight. The râles appear to be diminished, but there is still a slight pneumothorax. He has not reported since he changed climate.

CASE 5.—Mr. J. S., aged 30, was examined Sept. 5, 1898. His mother died of tuberculosis at the age of 36. He has been sick five years. During the first two years of his illness he coughed violently and expectorated freely, and had considerable fever and night sweats. His weight was reduced to 117 pounds after having been sick three months, and varied between 114 and 124 pounds during the first two years of his illness. During the third year he coughed and expectorated less, and reached 135 pounds in weight; during the fourth year there was a gradual improvement. At present he has paroxysms of coughing with much expectoration. He has no fever nor night sweats and is able to work. There are no physical signs in the lungs except scattered crepitant râles in the right lower lobe. There are a few tubercle bacilli in his sputum.

On September 7, 171 cubic inches of nitrogen was injected into the right pleural cavity. There was a perfect pneumothorax and considerable pain and distress for half an hour.

In this case we had supposed, on account of the paroxysms of coughing with marked expectoration, that a cavity existed which was more or less centrally located and gave rise to no physical signs. This patient came from a considerable distance and has not appeared for examination. He sends word by another patient that he is in excellent condition. We hoped in this case that the compression would obliterate the cavity and permit it to heal.

CASE 6.—Mr. G. M., aged 30, was examined Sept. 5, 1898.

* Presented to the Section on Practice of Medicine, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

There had been no tuberculosis in the family. Patient began to cough in October, 1897. Cough and expectoration have continued with some remissions to the present time. There is afternoon elevation of temperature and night sweats, which have been almost continuous from the beginning of the disease. Normal weight is from 145 to 150 pounds; maximum 160 pounds; weight at present 134. He had several attacks of hemoptysis. Examination revealed moderate emaciation; temperature 101 F; pulse 118; dulness over right upper lobe with increased vocal fremitus and crepitant râles; numerous crepitant râles over left lower lobe anteriorly but no dulness. Tubercle bacilli are present in large quantities.

September 7: 120 cubic inches of nitrogen was injected into the right pleural cavity. On September 15 the patient writes that his cough has considerably diminished and is never violent, as formerly. He sleeps well; expectorates little, and states that his appetite is good. He says: "The most remarkable feature is that when I left Chicago immediately after the injection I weighed 134 pounds and to-day I weigh 143 pounds and am working every day." This patient was subsequently injected by his family physician. On Dec. 7, 1898, the patient appeared again for examination. At this time there is still dulness of the right upper lobe; entire absence of pulmonary excursion; the liver dulness begins at the fourth rib in the mammary line, showing that the lung has become adherent to the parietal pleura, has retracted considerably, taking with it the diaphragm and to a limited degree the chest wall. At this time his temperature was 98 F, pulse 83, respiration 24, weight 147½ pounds, a gain of 13½ pounds since his first injection. Inasmuch as the pleural cavity is now obliterated and the lung much retracted, I could not inject again, and advised the patient to go to Arizona.

CASE 7.—Mr. O. Z., aged 32, presented himself for examination Sept. 8, 1898. There had been no pulmonary tuberculosis in the family. June 16, 1898, he had an attack of pleurisy, from which he still suffers. He coughs and expectorates freely, and has had several slight attacks of hemoptysis; has some pain in the right thorax as the result of dry pleurisy. The right apex is dull and many crepitant râles are to be heard over the upper half of the right upper lobe. On account of the pleurisy it was deemed advisable to delay the operation indefinitely and to await developments. October 11 he was again examined. Subjectively he was much improved. Friction rubs have disappeared; dulness and crepitant râles over the right upper lobe are still as was noted on September 8.

October 18: 120 cubic inches of nitrogen was injected into the right pleural cavity. There was very little dyspnea, some pain over base of right thorax, due probably to pressure upon the diaphragm.

October 31: His appetite has been very poor and he has lost five pounds in weight since the operation.

November 9: He weighs 122½ pounds; pulse 104; temperature 99 F.

November 30: Pneumothorax has entirely disappeared; weight 112½ pounds; temperature 99 F.

December 5: 150 cubic inches of nitrogen was injected into the right pleural cavity.

Feb. 1, 1899: He weighs 126 pounds; temperature 99 F. He coughs only in the morning for a short time after arising. Appetite is good. There is relative dulness over the right upper lobe, and breath-sounds over the right upper lobe are harsh. At the end of a deep inspiration two or three fine crepitant râles are heard at the very apex of the right lung. Patient was obliged to work during the entire time he was under treatment. He stated at the time of the last examination that he felt well and that he would not call on me again unless he should find himself failing.

CASE 8.—Miss S., aged 26, was examined Aug. 25, 1898. She gave no tubercular history. She complains of pain in abdomen; diarrhea and harassing cough. She expectorates profusely, has no hemoptysis. An examination of sputum shows an enormous quantity of tubercle bacilli, in fact more than I had ever seen in a specimen of sputum. Examination showed a complexion sallow and of a subicteric tinge; slight dulness over left upper lobe, somewhat more marked, relatively, posteriorly. Crepitant râles were heard over the entire left upper lobe but particularly over the apex, and a few scattered coarse dry râles over the right lung. On account of intestinal symptoms operation was not advised at this time. Cod-liver oil, maltine and carbonate of creosote were prescribed. Her weight at this time was 123 pounds; temperature 101 F., pulse 104.

September 18: Patient has lost three pounds in weight; she coughs and expectorates as before and diarrhea persists. Lung findings are as at previous examination.

October 7: 120 cubic inches of nitrogen was injected into the left pleural cavity. There is a perfect pneumothorax. Heart is displaced 2 cm. to the right; slight dyspnea.

October 10: Pneumothorax still present; cough and expectoration much diminished; weight 126 pounds.

This patient was injected at intervals of from 3½ to 5 weeks, depending on the rapidity of absorption of gas, until four injections had been made. There was a gradual increase of weight, and improvement in general. After the second operation, the menses, which had been absent six months, reappeared. Four weeks after the second operation the physical findings in the lung were practically normal. The breath-sounds over the upper lobe and apex of the lower lobe were a little harsh, and a few dry râles could be heard along the inner border of the left scapula. Dr. Waxham of Chicago examined the patient with me at this time, and was present at the operation. One month after the fourth operation she was discharged. She then weighed 138 pounds, had no cough or expectoration and felt very well, although her diarrhea persisted. Two weeks later, at the time when influenza was prevalent in Chicago, she developed an attack of this disease, and upon examining her lungs at this time râles were heard everywhere on both sides. Fearing a dissemination of the tubercular infection another injection of 150 cubic inches was given. An examination of the sputum at this time was negative as to tubercle bacilli. The lungs gradually cleared up and two weeks later were entirely normal, except the permanent changes in the left upper lobe due to the cicatrization. When last examined, on May 22, she felt perfectly well; there was still a diarrhea; weight 142 pounds—a gain of 22 pounds since date of first examination; no cough nor expectoration.

CASE 9.—Mr. P. Z., aged 24, was examined Sept. 29, 1898. There was no history of tuberculosis in the family. He has coughed and expectorated freely for five months, with slight hemoptysis repeatedly. During the past eight years he has had a slight hacking cough, but this has never been associated with other symptoms of pulmonary disease until five months ago. There are a few crepitant râles and slight relative dulness over the left apex. The breath-sounds over the right apex are harsh but no râles are heard here. Pulse 90, temperature 100.5 F., respirations 20; tubercle bacilli in the sputum.

September 9: 130 cubic inches of nitrogen was injected into the left pleural cavity; perfect pneumothorax. A week later the patient was sent to Texas, and October 8 he writes that his cough and expectoration were much diminished and that he has gained four pounds in weight.

July 3, 1899: The patient presented himself again for examination. He has gained sixteen pounds in weight—six pounds heavier than he has ever been—does not cough nor expectorate. His general appearance, particularly his color, has improved greatly. There are absolutely no physical findings in the lung. He asked as to the advisability of an injection to compress the right lung, as a preventive measure inasmuch as he had gained so rapidly after the compression of the left lung.

CASE 10.—Mr. C. E., aged 23, was examined Sept. 12, 1898. His parents are living and in good health. The first indication of pulmonary disease was an attack of hemoptysis nine months ago; since then he has coughed and expectorated continuously. He had numerous attacks of hemoptysis during December, 1897 and January, 1898. There is marked dulness over the right upper lobe, and numerous crepitant râles; a few râles over the right lower lobe. Respiratory excursion on the right side is fairly good. A few dry râles are scattered over the right lung; no dulness; his weight is 133 pounds—normal weight 155 pounds—pulse 144; temperature 102.6 F.

September 22: Temperature at 4 p.m. 103.8 F. Stomach very irritable.

September 27: 130 cubic inches of nitrogen was injected into the right pleural cavity. Breath-sounds are almost entirely obliterated.

October 4: He has lost two pounds in weight; has had no night sweats since the operation, which before were very troublesome. Temperature 101 F. (p.m.), pulse 140.

October 14: Weight is 134¼ pounds; cough as before, but expectoration less. Night sweats very slight.

October 15: 115 cubic inches of nitrogen was injected into

the right pleural cavity. The patient was sent to Arizona and reported to me by mail at frequent intervals. After a two months' stay in Arizona he developed a pneumothorax, which confined him to his bed two weeks. He gradually improved, however, and on April 18, 1899, he wrote that he weighed 139 pounds, and that his pulse was 106 per minute. His exact condition at the present time is not known. In May he wrote that he felt much stronger, that his appetite was good, his pulse never reached 100, and that he was anxious to return home.

CASE 11.—Mr. E. D., aged 31, was examined Sept. 12, 1898. His family history is free from tuberculosis. He began to cough in February, 1898; had an attack of hemoptysis (one quart of blood) in June, 1898. Has lost weight and strength gradually, but considerably. There was dulness and crepitant râles over the right upper lobe, and the sputum contained tubercle bacilli in moderate quantities; weight 135 pounds.

September 13: 140 cubic inches of nitrogen was injected into the right pleural cavity; perfect pneumothorax. Patient returned to his work within an hour after the operation.

October 10: Gas was found to have disappeared almost completely; dulness over right upper lobe as before; crepitant râles less numerous; weight 141 pounds; pulse 88.

October 11: 150 cubic inches of nitrogen was injected into the right pleural cavity. This was followed by considerable subcutaneous cellular emphysema.

November 21: Weight was 148 pounds; no night sweats. His color and general appearance were very much improved. There was slight dulness over the right upper lobe; no râles.

Jan. 4, 1899, he presented himself for examination, having failed to appear for a third injection as he had been directed. He stated that he felt well, that he still weighed 148 pounds—a gain of 13 pounds since the first treatment—but he had developed a very acute attack of bronchitis. Examination of lungs showed both to be involved in an acute diffuse bronchitis. There were moist râles everywhere over both lungs. The sputum was examined, and a few tubercle bacilli found. After treatment with expectorants for one week, no improvement having resulted, he was advised to go to a warmer climate. April 14, 1899, having gradually lost what he had gained, he returned to Chicago. There are now signs of involvement of both lungs. He has gained three pounds since his return and is at work every day.

CASE 12.—Mr. C. H., aged 31, was first examined on Sept. 15, 1898. He had coughed and expectorated freely for four months. Cough was sometimes paroxysmal and resulted in vomiting. He had had fever during the forenoon and drenching night sweats since July. He lost 15 pounds in weight during July and August; no hemoptysis; weight 136 pounds. Dulness and crepitant râles prevailed over the right upper lobe and right middle lobe. Tubercle bacilli were present in the sputum in large quantities.

September 23: 135 cubic inches of nitrogen was injected into the right pleural cavity; slight dyspnea; breath-sounds well obliterated.

October 11: He has had rheumatism in knees and ankles; expectoration is diminished; no night sweats; weight 139 pounds.

October 25: Gas completely absorbed. He has had night sweats during last three nights; temperature 103.2 F.; pulse 132; respiration 28. There are signs of a cavity in the third interspace on the right side anteriorly.

October 25: 145 cubic inches of nitrogen was injected into the right pleural cavity; the same quantity November 28, and again on Jan. 10, 1898.

January 10: There is very little cough and only in the morning, immediately after rising; weight 148 (a gain of 12 pounds). Breath-sounds over the entire right lung are diminished. Signs of cavity in third interspace still persist; pulse 96; temperature 99 F.; respiration 24. The general condition of this patient is much improved. The temperature is nearly normal; pulse 96 (Sept. 23, 1898, it was 135). One month later an examination reveals an entire absence of pulmonary excursion; signs of cavity are still present. Further compression of the lung to obliterate the cavity could not be effected, and the patient was advised to go to Arizona.

CASE 13.—Miss M. W., aged 23, was examined Sept. 16, 1898. Her parents are living and in good health. There is no tuberculosis in the family. Her illness dates back three years to an attack of influenza. Ten days after the onset of the influenza she coughed up four or five ounces of blood. Since that time there has been continuous coughing and expectoration; the sputum has been blood-stained occasionally. She states that she has fever in the afternoon and night sweats. From January, 1897, to May 1898, she lived in Arizona. Her condition there changed little, if at all. She is anemic, emaciated, and weighs 100 pounds. The expansion of the thorax is much impaired; marked retraction of right clavicular fossæ. There is dulness over the entire right lung, the breath-sounds over the right upper lobe are harsh; there are numerous crepitant râles over the entire right lung; the vocal fremitus is very much exaggerated. The sputum contains a moderate quantity of tubercle bacilli. Temperature 100 F., pulse 108.

September 29: 60 cubic inches of nitrogen was injected into the right pleural cavity. There was marked dyspnea immediately, and profuse expectoration for three days after the injection.

October 14: Cough and expectoration are diminished, and the patient states that she feels much stronger; weight 101 pounds; temperature 99.3 F., pulse 108.

October 28: 90 cubic inches of nitrogen.

November 30: Temperature is 98.6 F., pulse 100; weight 105 pounds.

December 1: 90 cubic inches of nitrogen.

This patient has been examined repeatedly since her last operation. At present she coughs very little and expectorates only in the morning. She has gained in weight slowly, and at the time of the last examination weighed 107 pounds. The breath-sounds over the right lung are broncho-vesicular, but the râles have nearly disappeared. She now has an enormous degree of fibrosis of the right lung.

CASE 14.—Mr. C. H., aged 27, was examined Sept. 19, 1898. His family history is free from tuberculosis. He has had a slight cough and a gradual but slight loss of weight during the last year. In June last he had three or four slight attacks of hemoptysis; another attack about September 1. There is relative dulness over the right apex, with scattered râles. Temperature is 99 F., pulse 85, respirations 20. Examination of the sputum showed the presence of tubercle bacilli. He weighs 165 pounds.

September 21: 130 cubic inches of nitrogen was injected into the right pleural cavity.

October 4: Considerable pneumothorax.

October 22: 117 cubic inches of nitrogen was injected; perfect pneumothorax.

November 8: Pneumothorax still persists; pulse 78, temperature 99 F.

November 21: Gas entirely absorbed; right lung is entirely normal, except for a few dry rhonci that are heard over the apex during both phases of respiration; pulse 88; temperature 98.5 F; there is still slight expectoration. Weight is 165 pounds. The sputum has been examined repeatedly with entirely negative results except for a leptothrix that is constantly present. The breath is rather fetid, and there is still some expectoration. These remaining changes are possibly due to the presence of the leptothrix, as its presence has been continuous throughout the entire time of treatment.

CASE 15.—Mr. A. L., aged 30, was examined Sept. 19, 1898. There was no tuberculosis in the family. This patient has coughed during the past four years. He has lost 15 pounds in weight, and has had several slight attacks of hemoptysis.

In September, 1896, he had a severe attack of hemoptysis (about 3 pints). The left side of the chest is somewhat retracted, expansion diminished; breath-sounds are feeble and there are a few râles. The right lung expands much more than the left, but there is marked dulness over the left upper lobe. There are many crepitant râles over the right upper lobe. The sputum contains tubercle bacilli. Diagnosis: Partially healed fibroid tuberculosis in left lung and disseminated tuberculosis in right upper lobe.

September 20: 80 cubic inches of nitrogen was injected into the right pleural cavity. The following day the patient went back to his home in Montana. October 10, he writes as follows: "Weight 157 pounds, a gain of 2 pounds; cough very little, have no night sweats and my appetite is good. Pulse 80. I do not expect to gain much in weight as I am about as heavy now as I have ever been."

The patient has not reported since.

CASE 16.—B. F., aged 29, was examined September 22. Her parents are living and in good health. Her husband died two years ago of a very rapid tuberculosis of the lung. She has coughed since December, 1897, but did not begin to expectorate until June, 1898. At present she coughs and expectorates very freely. She complains of afternoon fever and night sweats. There is dulness over the entire right lung and signs of cavity in the right upper lobe. Mucous and crepitant râles are scattered over the whole lung; scattered sibilant and a few crepitant râles over the left lung. Excursion over the right lung is diminished. I advised this patient to change climate, gave her the usual instructions as to diet and prescribed a combination of cod-liver oil, maltine and guaiacol. In a few days she appeared at the office and asked that we try the injection in her case. She felt that she could not recover if she were to rely

upon medicine alone, and she could not afford a change of climate.

September 27: 110 cubic inches of nitrogen was injected into the right pleural cavity. Her weight at that time was 100 pounds; pulse 122; temperature 101 F.

October 7: She weighs 103 pounds.

October 19: 118 cubic inches of nitrogen was injected into the right pleural cavity. After this injection the cough diminished considerably.

November 19: 100 cubic inches of nitrogen was injected into the right pleural cavity. No change in pulse-rate nor temperature.

December 15: She weighs 106 pounds; expectoration is diminished; no night sweats; pulse 118.

Feb. 15, 1899: Pulse is 100; temperature 99.5 F.

April 12: Weight is 106 pounds. The cough and expectoration are now very slight; the temperature 98.6 F., respiration 24, pulse 90. There are scattered crepitant râles over the left upper lobe, very few râles over the right lung, over which the breath-sounds are quite tubular. At the last examination, on May 2, the pulse was 88, temperature normal; lung findings as at last examination.

CASE 17.—Mr. A. D., aged 38, was examined Sept. 23, 1898. His parents are living and in good health. His maternal grandfather died of tuberculosis of lung. Illness began in December, 1896, with an attack of hemoptysis, without preceding symptoms of pulmonary disease (over a pint of blood). He began to cough and expectorate profusely in December, 1897. He is emaciated, anemic; there is impaired resonance over the entire right lung, also mucous râles, which are more numerous over the right upper lobe. There are a few fine râles in the third right interspace near the sternum. Weight is 129 pounds (normal 150 pounds); temperature 100 F.; pulse 96.

September 23: 60 cubic inches of nitrogen was injected into the right pleural cavity.

October 8: He has gained five pounds in weight. Some absorption of gas has taken place, and the breath-sounds are again quite audible.

October 18: Weight is 137 pounds, a gain of eight pounds; pulse 102; temperature 98.6 F.

October 23: A second injection with nitrogen was attempted. The needle was inserted but the usual current of air through the needle could not be heard. The tube was attached and the patient instructed to take deep breaths. After two or three deep inspirations, about 3 cubic inches of nitrogen having passed through the needle, the patient said he felt weak; he became pale and went into a state of collapse. The respirations were stertorous, pulse slow and weak. The needle was withdrawn and the wound sealed. Stimulants were administered freely. As soon as the pulse improved slightly a careful examination was made. It was found that the entire right side of the body was paralyzed and, after the patient regained consciousness it was discovered that he had aphasia. The paralysis disappeared from the face in about twenty-four hours. About one month later motion returned in the leg, and at the end of three months there was slight motion in the arm. At present the face is entirely normal, the leg somewhat weak and spastic, and but slight motion in the arm. The pulmonary changes are now more extensive, the left lung having been subsequently involved in disease.

CASE 18.—Mrs. L. D., aged 24, was examined Sept. 28, 1898. Her family history is negative as to tuberculosis. Eighteen months ago, after an attack of measles, she began to cough and expectorate, and this has continued to the present time. Previous to her attack of measles she had an occasional cough, and two years ago, during a paroxysm of cough she expectorated several calcareous particles that were about the size of a split pea. This has occurred on two occasions since that time. There is dulness over the entire right lung, with signs of cavity over the left upper lobe anteriorly. There are mucous and crepitant râles over the entire lung; a few crepitant râles over the right apex. Weight is 103 pounds; pulse 120.

October 4: 70 cubic inches of nitrogen was injected into the left pleural cavity.

October 10: Cough and expectoration have diminished, temperature is 100 F., pulse 120.

November 3: There is considerable cough during the night; pulse, temperature, respiration and weight the same as at the previous examination.

November 4: 80 cubic inches of nitrogen was injected into the right pleural cavity; about a month later a third injection.

March 16, 1899: Patient's weight is 108 pounds. The signs of a cavity over the left upper lobe are much less pronounced; pulse 115; respiration 24. She has not reported in person since last operation. Her husband states that she coughs a little, has a good appetite, her color is much improved and the expectoration is very slight.

CASE 19.—Mrs. A. H., aged 30, was examined Sept. 28, 1898. Her mother died from some pulmonary disease. In December, 1897, she had an attack of influenza and was confined to her bed for three months. She coughed continuously with very slight expectoration. Since June, 1898, her voice has been harsh and husky. During the last three months there has been profuse expectoration; pulse 98; temperature 102 F.; respiration 24. There is dulness over the right upper lobe, with numerous mucous and crepitant râles.

October 1: 75 cubic inches of nitrogen was injected into the right pleural cavity. There was considerable pain and dyspnea. Pulse became quite rapid; temperature 101 F. As the result of the compression of the right lung the breath-sounds over the left lung became exaggerated and a few scattered râles could be heard.

November 5: 185 cubic inches of nitrogen was injected.

December 5: 94 cubic inches of nitrogen was injected.

Jan. 3, 1899: Patient's weight is 102 pounds (a gain of 11 pounds since first injection); pulse 100; respiration 20; temperature 99.4 F. Râles over the right upper lobe are still present. The mucous clicks and crepitant râles over the left apex are somewhat more numerous.

January 4: 80 cubic inches of nitrogen gas was injected. After the last injection the patient returned to her home in Indiana. She improved for several weeks and then developed, so she wrote, an attack of influenza and was confined to bed over two weeks. She has lost a few pounds in weight and coughs and expectorates somewhat more freely.

CASE 20.—Mr. C. S., aged 32, was examined Sept. 30, 1898. There is no tubercular history in his family. The first indication of pulmonary disease was an attack of hemoptysis in 1897. Previous to this time (two or three months) there had been a slight cough to which the patient had not attached any importance; since the attack of hemoptysis there has been a continuous cough and profuse expectoration of a thick purulent material. His present weight is 130 pounds (normal 155). There is considerable anemia and emaciation; dulness over the right upper lobe; crepitant and subcrepitant râles. Middle and lower lobes of right lung are free, as is also the left lung. The sputum contains tubercle bacilli in large quantities. There is a fistula in ano following an old periproctcal abscess; pulse 88; temperature 100.8 F.; respiration 20.

October 4: 82 cubic inches of nitrogen was injected into the right pleural cavity. There was considerable emphysema for three days after the injection. The cough diminished immediately after the injections and has been comparatively slight since.

October 19: Weight is 142 pounds.

November 7: Weight is 143 pounds.

November 11: A large quantity of gas was injected but no sign of pneumothorax developed and it was concluded that the gas had been injected into a small bronchus. The needle was reinserted and about 60 cubic inches of nitrogen injected, resulting in a moderate pneumothorax.

December 3: Weight is 143 pounds; pulse 86; temperature 99.5 F.; respiration 22. The patient at present coughs but very little and only in the morning.

December 6: A third injection was attempted; three different points were punctured, but the pleural cavity was found obliterated.

Jan. 5, 1899: Patient's weight 144 pounds; pulse 88; temperature 99.5 F.; respiration 24. The lung could not be compressed on account of pleural adhesions and patient was advised to go to a more suitable climate.

CASE 21.—Mr. N. D., aged 31, was examined Nov. 10, 1898. His parents are living, and there is no history of tuberculosis in the family. He has been sick nine years; has had attacks of hemoptysis, and has spent much of his time in Texas and California. Examination revealed considerable emaciation; respiratory movement diminished, more particularly on the right side; marked dulness over the right apex; relative dulness over the entire right upper lobe; crepitant and fine mucous râles over the entire right lung; a few scattered crepitant râles over the left upper lobe.

October 7: 60 cubic inches of nitrogen was injected into the right pleural cavity. This was followed by subcutaneous cellular emphysema which extended into the neck, abdomen and scrotum.

October 10: In spite of the gas that escaped into the cellular tissue there is still a marked pneumothorax; weight 100 pounds; temperature 99 F.; cough somewhat diminished.

November 22, 109 cubic inches of nitrogen was injected into the right pleural cavity; perfect pneumothorax.

December 22: Patient states that he feels somewhat stronger and more energetic and that the cough has diminished. Physical signs in the lungs have not changed.

Patient has not reported since Dec. 22, 1898.

CASE 22.—Mr. J. H., aged 24, was examined October 13, 1898. His father died of tuberculosis of lungs at the age of 35. One month ago he had an attack of acute bronchitis, and since that time there has been a continuous cough and expectoration of yellowish purulent material, slight fever and night sweats. Weight is 120 pounds. (Normal 126.)

October 1: Sputum was slightly blood-streaked.

October 7: He was examined by his physician, who stated that he had tuberculosis of the apex of the left lung. Seventy-five cubic inches of nitrogen gas was injected into the left pleural cavity. There was considerable dyspnea following the operation: pulse 96; temperature 99.1 F. A few days after the injection he went to Colorado.

CASE 23.—Mr. E. J., aged 29, was first seen Oct. 13, 1898. His father died of tuberculosis at the age of 39; one brother and one sister also died of tuberculosis. His illness began with a dry pleurisy in December, 1897. Since January, 1898, he has coughed and expectorated freely, the sputum has been blood-streaked repeatedly; he complains of feeling feverish in the afternoon but has no night sweats; weight 142 pounds. (Maximum weight 150.) He experiences occasional sharp pains in the left thorax. There is no dulness over the right lung, but a few crepitant râles are heard in the first and second interspaces near the border of the sternum. Respiratory movements of the left thorax are diminished; there is relative dulness over the entire left lung, which is more marked over the lower lobe anteriorly and laterally. Crepitant râles are heard over the entire lung, but are not numerous. Sputum was examined by Dr. Witherspoon who reported the presence of tubercle bacilli.

October 15: 155 cubic inches of nitrogen was injected into the right pleural cavity. There was considerable pain for ten or twelve hours after the injection; pulse 104; temperature 99.1 F.

October 31: Weight is 145 pounds; cough somewhat diminished; appetite good. He has had very little fever and no night sweats; temperature 99 F; pulse 100.

November 11: Weight is 147 pounds; pulse 70; temperature 98.6 F.

October 15: 80 cubic inches of nitrogen was injected into the left pleural cavity.

November 25: Weight is 147 pounds; temperature 98.6 F; pulse 75. There are now very few râles over the left lung. During the last week patient coughed up a calcareous body the size of a pea.

December 2: Weight is 149 pounds. He is coughing very little and feels much stronger.

December 9: Weight is 151 pounds; pulse 78; temperature 98.8 F; respiration 21.

February 20: Weight is 154 pounds. The patient's general condition is excellent, and he coughs but slightly in the morning.

April 24: Weight is 154 pounds; pulse 76; temperature 98.6 F; respiration 18. Sputum was examined at this time and no tubercle bacilli found.

CASE 24.—Mr. E. C., aged 35, was examined Oct. 29, 1898. His mother died of tuberculosis pulmonum. He began to cough fourteen months ago, and during the last two months has expectorated profusely; weight 130 pounds. He has a high afternoon fever and night sweats. Diarrhea developed three weeks ago. He is much emaciated, tall, slender, thorax retracted; dulness over the right upper lobe, over which are heard roughened breath-sounds and many crepitant râles. The left lung is normal. The abdomen is retracted, abdominal walls tense, and there is some tenderness to pressure. Weight is 133 pounds.

November 15: 170 cubic inches of nitrogen was injected into the right pleural cavity, but no signs of pneumothorax appeared. The gas must have been injected into a small bronchus. This patient was injected twice at the Dunning Hospital.

January 20, 1899: Weight is 131 pounds; pulse 110; temperature 100 F; respiration 24. Later the patient complained of more pain in the abdomen, the retraction became more marked, he gradually lost in weight and no report has been sent since early in April.

CASE 25.—Mr. D. S., aged 26, was examined Nov. 6, 1898. He has been sick one year. His family is free from tuberculosis. On June 26, 1898, after severe physical exertion, he had an attack of hemoptysis and spat up a pint of blood; had two slight attacks a few days later. These attacks of hemoptysis were followed by fever and night sweats, and his cough and expectoration have been profuse. Weight is 122 pounds; temperature 101.2 F; pulse 140. There is relative dulness over the right upper lobe, over which numerous mucous and crepitant râles are heard.

November 11: 122 cubic inches of nitrogen was injected into the right pleural cavity.

November 21: There is still a perfect pneumothorax; pulse 120; temperature 99.5 F.

December 9: 150 cubic inches of nitrogen was injected into the right pleural cavity.

December 20: Weight is 103 pounds. Patient feels somewhat stronger; cough is less; the expectoration, however, is quite profuse. The night sweats have subsided; temperature 99.8 F; pulse 110; respiration 25. Subsequently he developed an exudative pleurisy and no further injections were given. At last report he weighed 126 pounds, was coughing but slightly, although he felt very weak.

(To be continued.)

Therapeutics.

Calomel Injections in Elephantiasis.

Calomel injections into the thigh muscles in cases of elephantiasis are reported as having produced good results, by Dr. A. I. Pospelow, professor of dermatology and syphilography at Moscow. He injects an oily mixture of three-quarters of a grain of calomel in 15 drops of vaselin-oil every four days. Swelling of the limbs quickly went down. In one case an ulcer of the leg speedily cicatrized so as to allow the patient to walk without difficulty. Neither of the two thus treated had had syphilis or tuberculosis.—*Merck's Archives.*

Ichthyol in Renal Tuberculosis.

Goldberg, in the *Berliner Klinische Wochenschrift*, refers to Palet's statistics and shows that of 136 cases of nephrectomy done for renal tuberculosis, fifty-one, that is 40 per cent., died, and that only one-third of those operated on lived over one year. This is due to infection of other organs. He recommends ichthyol internally.

℞ Ichthyol sulpho-ammoniac
Aquæ destillatæ, āā.....5v

Ten to seventy drops in water three times a day after eating. The larger the dose the sooner the curative action. Besides causing a general improvement, the local action was good—the hemorrhages ceased and the suppuration diminished, as did also the tenesmus and pain. It may be given for years.

Strychnin in the Senile Heart.

Nux vomica is an excellent tonic for the senile heart and its concomitants, but as its usefulness depends on its active principle, it is more advantageous and contributes to greater accuracy of the dosage to employ the liquor strychninæ hydrochloratis rather than any of the cruder preparations. The maximum benefit is only to be got from any drug by using the maximum dose for a sufficient length of time, and to do this safely with any remedy, but especially with so powerful a drug as strychnin, it is needful to be both accurate in the dosage and regular in the times of administration. Strychnin is cumulative in its action, but, by strict adherence to the rules laid down, it may be used continuously and safely for many years. I have known five minims of the liquor strychninæ—1/26 grain of strychnin—to be taken twice a day for over ten years, with the very best results; at the end of that time symptoms of saturation began to appear, and the strychnin had to be discontinued. . . . It is only rarely that a larger dose than five minims of the liquor strychninæ can be given daily with benefit; three such doses, fifteen minims instead of ten in the day, are generally followed by symptoms of poisoning in no long time. Idiosyncrasy occasionally turns up, and for this we must be prepared, but the dose indicated is the maximum dose administrable to by far the larger number of mankind, for any length of time at least. In anemic patients there is often an intolerance of strychnin, and if employed at all, it has to be given in almost infinitesimal doses. Strychnin acts in two ways: it is an admirable tonic for the stomach, especially in those catarrhal conditions accompanied with venous congestion, so commonly present when the circulation is feeble. In this way the digestion is improved and the blood enriched,

so that the body generally, and the heart in particular, gets better nourished. Strychnin has also a specially stimulating effect on the nervous system generally; consequently it stimulates and renders more excitable the vasomotor center, and the cardiac ganglia, probably even energizing that primordial power of spontaneous movement possessed by the cardiac muscular fiber itself—a power which may be looked on as a remnant of the *vis insita*, the once diffuse, nervous force. In virtue of this action on the heart and nerve-centers, strychnin increases the cardiac force, raises the intra-arterial blood-pressure, and is—next to digitalis—the most excellent tonic we possess for all feeble and dilated hearts. In the less serious class of cases it is sufficient of itself to give tone both to the heart and the system generally, while in the most serious cases it is a most useful adjunct to digitalis. *"The Senile Heart:" George William Balfour, M.D.*

Myocarditis.

In acute diffuse myocarditis, absolute rest. Ice-bag to chest is grateful and beneficial.

FOR NERVOUS AGITATION.

℞ Elixir ammon valerian.....℥ii
Sig. Dessertspoonful repeated as required.
Or
℞ Sodii bromidi
Potassii bromidi, āā.....5i
Aquæ .....℥ii
M. Sig. Teaspoonful repeated according to the effect.

IN EVIDENCE OF HEART FAILURE.

℞ Tinct. digitalis.....m. viii
Tinct. Strophanthus.....m. vi
Dose. Repeat every three hours.
Or
℞ Sparteinæ sulph.....gr. ¼
Caffeinæ .....gr. ii
For one pill or tablet.
℞ Strychninæ .....gr. 1/20
Spiritus frumenti.....5i
Every two to four hours.
Or
℞ Spiritus ammon. aromatici.....5ss-i
Or
℞ Liquoris ammon. acetatis.....5ii-iii

—*Patton.*

Treatment of Fatty Heart.

℞ Sodii arsenat.....gr. 1/64
Potassii iodidi.....gr. ¾
Pulv. nucis vomicæ.....gr. ⅛
Pulv. rhei.....gr. ¾
Ext. dulcamaræ.....gr. iss
M. et ft. pil. No. i. Sig. One pill daily.

—*A. Robin.*

In fatty heart dilatation of cavities and mitral regurgitation with anemia:

℞ Ferri reducti.....℈i
Pulv. digitalis fol. (Eng.).....℈i
Quininæ sulphatis.....gr. x
Pulv. Scillæ.....gr. x
M. Ft. Massa et in pil No. xx div. Sig. A pill three or four times daily.

—*Bartholow.*

Treatment of Cystitis.

In the treatment of cystitis the constitutional as well as the local symptoms should receive the most careful attention. During the acute attacks the patient should be encouraged to take large quantities of water. All articles of diet—as asparagus, etc.—that act more or less as irritants to the bladder should be left from the diet list. The bowels should be moved with a saline cathartic, Epsom salts being the best, and the patient placed in bed if the case is a severe one. Opiates should be avoided as much as possible. The bromids, chloral, cannabis indica, or similarly acting analgesics, may be given as indicated for pain. In the very acute cases the bladder should not be treated locally, but, if the disease is first seen in its chronic or subacute stage, then most cases require, in addition to the constitutional treatment, a careful application of local remedies. This is best carried out by inspection through the cystoscope. As a local application a 20-grain solution of protargol three times a week is valuable. If the cystitis is of gonorrheal origin, nothing acts better than a saturated watery solution of picric acid applied directly to the inflamed surface. Some cases are much benefited by local application of 10 grains nitrate of silver, thrice weekly. Very weak solutions of permanganate of potassium have acted much better in the chronic cases, as an irrigating fluid, than boric acid solutions.—*A. H. Cordier: International Journal of Surgery.*

Nervous Gastralgia.

℞ Sodii bicarbonat.....5iss
Tinct. nucis vom.....m. xl
Liq. morphinæ (gr. ii to 5i).....5i
Spiritus ammon. aromat.....5iss
Syrupi zingiberis.....5i
Aquæ menth. pip. q. s. ad.....℥viii
M. Sig. ℥ss four times a day.

—*J. W. Martin.*

Severe Constipation of Dyspeptics.

℞ Podophyllin .....gr. v
Ext. nucis vomicæ
Ext. physostigmatis, āā.....gr. viiss
Ext. gentianæ
Pulv. glycyrrhizæ, āā, q. s.
M. Ft. pil No. xxx. Sig. One pill twice daily.

—*Einhorn.*

Hayem's Artificial Serum in Malignant Syphilis.

Augagneur has employed injections of the following solution in two cases, with good results:

℞ Sodii chloridi..... 7 parts
Sodii phosphatis..... 2 parts
Aquæ .....1000 parts

M. Whether it acts by exciting diuresis or by promoting leucocytosis is uncertain, but the more pronounced are the fever and diuresis that follow, the more energetic is the therapeutic action. Augagneur gives four or five subcutaneous injections, of from twelve to fifteen ounces each, at intervals of five or six days.—*N. Y. Med. Jour.*

To Prevent Nausea Following Chloroformization.

Weber *(Bull. Gen. de Therap.)* says that the nausea after chloroformization may be avoided if the patient will take chloroform water for several weeks before undergoing operation, so as to accustom the system to it. His attention was called to this fact by the absence of nausea after operation in the case of two patients, who, on account of digestive disturbances, had taken chloroform water after each meal for several weeks. As the taste and smell of chloroform are repugnant to some persons, the following mixture is recommended:

℞ Aquæ chloroformi.....℥vi
Spiritus menthæ pip.
Spiritus anisi, āā.....m. iv
Filter after twelve hours.

Camphoric Acid for Night Sweats.

In the *Therapeutic Gazette* of March 15, 1899, Coston writes that he has successfully used camphoric acid for night sweats, particularly in debilitated conditions resulting from acute diseases, such as typhoid fever, etc. If the sweating is not checked the patient loses more from the profuse perspiration than is gained by the sleep. In these cases 20 or 30 grains of camphoric acid will effectually prevent sweating, so that the patient will awake refreshed. The effect of the drug is so lasting, that ordinarily the dose need not be repeated for several days, and never the same night. The remedy should be administered an hour before the sweating is expected to begin, and should be taken dry on the tongue, being washed down with half a glassful of water or sweet milk. It is insoluble in water, but soluble in alcohol; the alcoholic solution, however, is so intensely bitter that it is with difficulty patients can be induced to take it in this form.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Annals of Surgery, October.

1.—*Surgical Treatment of Hemorrhage from Gastric Ulcers. E. Wyllys Andrews and D. N. Eisendrath.
2.—*Actinomycosis in Man, with Special Reference to the Cases which have been Observed in America. John Rührah.
3.—*Some Observations on Surgery of the Gall-Bladder and Bile-Ducts. William J. Mayo.
4.—*Observations on Surgical Anatomy and Methods of Cure of Inguinal Hernia. J. Coplin Stinson.
5.—*Method of Treatment for Restoration of Entire Tibia Necrotic from Acute Osteomyelitis. H. W. Cushing.
6.—*Some Experiments Relating to Sterilization of the Hands. Leonard Freeman.
7.—Sterilized Water for Operating Rooms. Dudley P. Allen.
8.—Strangulated Internal Hernia through a Mesenteric Hole. Louis J. Mitchell.

Archives of Pediatrics, October.

9.—*Urticaria of the Mucous Membranes, Especially in Connection with Asthma. Frederick A. Packard.
10.—*Increase of Weight in Infants Fed Artificially. Henry Koplik.
11.—Congenital Cystic Kidney with Report of Case. Edwin E. Graham. Pathologic Report. W. M. F. Coplin.
12.—Case of Parencephalus. George N. Acker.
13.—Report of Case of Anuria. A. C. Cotton.
14.—Clinical Diagnosis Chart and Record: A Guide to Bedside Diagnosis for use in Medical Schools and in Practice. Augustus Caillé.
15.—Angioneurotic Edema Involving the Tongue and Lower Lip. Charles Gilmore Kerley.
16.—Deaths in Children Under Five Years, in the Largest Cities in the State of New York. George W. Goler.

Post-Graduate (N. Y.), September.

17.—Management of Breast Milk. Augustus Caillé.
18.—Treatment of Chronic Eczema at the Babies' Wards. H. D. Chapin.
19.—*Gastric Diseases in Childhood. Andrew Von Grimm.
20.—Three Cases, Presenting Indications of Addison's Disease, during Infancy and Childhood, with Postmortem and Histologic Reports on Two. Charles O. Maisch.
21.—Preparation and After-Treatment of Children for Operation. Frederic N. Wilson.

Southern Practitioner (Nashville, Tenn.), October.

22.—*Cerebrospinal Meningitis. Deering J. Roberts.
23.—Blood Vitality—Blood Integrity—Blood Purity. J. H. Cooper.

Southern Medical Journal (La Grange, N. C.), September.

24.—*Notes on Treatment of Suppurating Bubo. H. A. Royster.
25.—Treatment of Acute Dysentery, with Report of Cases. Robert C. Kenner.

Journal of Cutaneous and Genito-Urinary Diseases, October.

26.—*A Maculo-Anesthetic Lepride of the Palm. Douglass W. Montgomery.
27.—Report of Case of Congenital Dermatitis Herpetiformis and Almost Complete Absence of Finger and Toe-Nails. S. Sherwell.
28.—*Report of Cases Showing Unusual Situations for Lodgment of Gonococcus. George K. Swinburne.
29.—Case of Urticaria Pigmentosa. Arthur A. Small.

Illinois Medical Journal (Springfield), October.

30.—*Remarks on Diagnosis of Locomotor Ataxia. Hugh T. Patrick.
31.—*Acute Anterior Poliomyelitis. Elbert Wing.
32.—Treatment of Scarlet Fever. H. S. Worthly.
33.—*Rational Therapeutics. R. H. Henry.
34.—*Malignant Tumors of the Eye. Wm. H. Wilder.
35.—Unrecognized Smallpox. J. A. Egan.

Memphis Lancet, October.

36.—*Clinical Types of the Uric Acid Diathesis. I. N. Danforth.
37.—*Clinical Study of Sunstroke. Edward D. Mitchell.
38.—Case of Peliosis Rheumatica. I. A. McSwain.
39.—Case of Papilloma of the Soft Palate. Richmond McKinney.

Buffalo Medical Journal (N. Y.), October.

40.—Malaria Complicating the Puerperium. George A. Himmelsbach.
41.—Some Medico-Legal Aspects of Trauma in Relation to Diseased Cerebral Arteries. William C. Krauss.
42.—Edema. Stephen Y. Howell.
43.—Rhinophyma. Ernest Wende and G. W. Wende.
44.—Partial Atresia of the Urethra. W. H. Heath.

Clinical Review (Chicago), October.

45.—Clinical Lectures on Etiology, Pathology, Diagnosis and Treatment of Tumors. A. H. Levings.
46.—Acute Anterior Poliomyelitis. Henry M. Lyman.
47.—Lectures on Gunshot Wounds. Chas. B. Nancrede.
48.—Clinical Lectures on Obstetrics and Gynecology. Hemorrhage After Labor. Denslow Lewis.
49.—Four Plastic Operations Performed by N. Senn. W. W. Meloy.

Brooklyn Medical Journal, October.

50.—*Observations on Organization and Work of Medical Department of Seventh Army Corps. G. R. Fowler.
51.—*Remarks on Pathology of Nasal Septum. J. Wright.
52.—Glycerinated Vaccin Virus and Its Preparation. H. Wallace.
53.—*Incompleteness of Vaginal Speculum. J. E. Langstaff.
54.—Perforating Gunshot Wound of Right Thigh with Injury to Femoral Artery. F. W. Wunderlich.
55.—Notes on Uterine Hemorrhage. L. G. Langstaff.

Annals of Otology, Rhinology and Laryngology (St. Louis, Mo.), August.

56.—Bacteriology and Histology of Ozena. V. Cozzolino.
57.—Laryngeal Chorea (?) of Reflex Nasal Origin. Report of Case. J. A. Stucky.
58.—Report of Case of Acute, Purulent Endomastoiditis Developed in the Course of a Chronic Otorrhea; Followed by an Extradura-Abscess with Sloughing of the Dura Mater: Metastatic Abscess of Lung and Spontaneous Evacuation of Cavity: Recovery. P. M. Payne.

Kansas City Medical Index-Lancet, October.

59.—Clinical Side of Influenza. J. S. Triplett.
60.—Treatment of Diabetes Mellitus. Milton P. Creel.
61.—Electricity as a Therapeutic Resource for the General Practitioner. W. T. Herdman.
62.—*Review of Recent Advances in our Knowledge of Anatomy and Physiology of Nervous System. John Punton.

Medical Standard (Chicago), October.

63.—Surgical Cases, Cook County Hospital. Albert I. Bouffleur.
64.—*New Method of Eliciting the Subclavian Murmur. Albert Abrams.
65.—Surgical Treatment of Urethra in Old Men. D. R. Greenlee.
66.—Modern Treatment of Typhoid Fever. H. E. W. Barnes.
67.—Acute Gastro-Enteritis. H. C. Burcham.
68.—*Common Toad as Vehicle of Typhoid Fever. G. Law.
69.—New Remedies. J. F. Purviance.
70.—Eczema and Its Treatments. J. H. Hull.

Southwestern Medical Record (Houston, Texas), September.

71.—*Hypermedication. R. W. Knox.
72.—Auto-Intoxication as the Cause of Fever. Some Remarks on the Treatment. F. B. King.

Texas Medical News (Austin), September.

73.—Squamous Palmar Syphilide. A. H. Ohmann-Dumesnil.
74.—*Phonendoscope in Diagnosis of Foreign Bodies in Trachea. Edgar Doak Capps.

Northwestern Lancet (St. Paul, Minn.), September 15.

75.—Recent Advance in Gynecology. C. A. Stewart.
76.—*Perineo-Vaginal Incisions for Threatened Rupture of the Perineum. L. A. Fritsche.
77.—Observations on Inguinal Hernia. H. L. Staples.
78.—*Policy of State Sanitariums for Consumptives. R. M. Phelps.
79.—Care of the New-Born. Helen W. Bissell.
80.—Report of Fatal Case of Embolism with Autopsy. W. T. Adams.
81.—Neuroma of the Median; Removal and Restoration of the Function. A. W. Dunning.
82.—The Part of the Operating Room in Modern Surgery. Franklin Staples.

The Medical Fortnightly, October 2.

83.—Structural Varieties of Enlarged Prostate Relative to Treatment. Reginald Harrison.
84.—Etiology of Tubercular Hemoptysis. Thomas Linn.
85.—Differential Diagnosis of Smallpox. William Thomas Corlett.
86.—Nosophen and Antinosin. William A. Mann.

Pediatrics (N. Y.), October 1.

87.—*Enlarged Glands in Children. Carl Ludwig Schleich.
88.—Absence of the Fibula. Henry Ling Taylor.
89.—Case of Hemiplegia in a Child. Frank P. Norbury.

American Practitioner and News (Louisville, Ky.), August 15.

90.—*Treatment of Lobar Pneumonia. John G. Cecil.
91.—*Hernia and Its Operative Treatment. J. L. Johnson.
92.—Some Cases in Country Surgery. Chas. W. Aitken.

Medical News (N. Y.), October 14.

93.—*Absorption of Uncomplicated Immature Cataract by Conjoined Manipulation and Instillation. Richard Kalish.
94.—*Present Status of our Knowledge of Chlorosis. Thomas S. Southworth.
95.—*Histology of Dupuytren's Contraction of the Palmar Fascia: Report of Microscopic Examination in Two Additional Cases. J. B. Nichols.
96.—*Treatment of Suppuration of Middle Ear with Acetanilid. George F. Libby.

New York Medical Journal, October 14.

97.—*Plea for More Frequent Digital Exploration of Uterine Cavity, and Histologic Study of Uterine Scrapings as Aid to Diagnosis of Diseases of the Uterus. William E. Swan.
98.—*Septic Thrombo-phlebitis as a Complication of Peritonsillar Abscess. Report of Two Cases. M. R. Ward.
99.—Report of Cases of Peritonsillar Abscess Associated with Diphtheria. Thomas Hubbard.
100.—*Nasal Stenosis. Burton S. Booth.
101.—*Course and Prognosis of Chronic Spinal Neuritis. Arthur Conklin Brush.
102.—*Gangrene of Lung. With Report of Two Cases. A. H. Levings.
103.—*Relation of Stomach to Non-pregnant Uterus. Frank H. Murdoch.

Medical Record (N. Y.), October 7 and 14.

104.—*Important Points Regarding Perfection of Asepsis. Carl Beck.
105.—*Surgical Treatment of Gall-Stones. Frank C. Ferguson.
106.—*New Method of Reducing Old Dislocations of Lower Jaw. Theodore A. McGraw.
107.—Supplementary Note on Etiology of Scarlatina. W. J. Class.
108.—Pulsatory Hand and Foot Phenomena. W. Moser.
109.—Anomaly of Long Tendon of Biceps Muscle of Arm. Joseph D. Craig.
110.—A Tack in the Lung for Seven Years. Andrew V. Jova.
111.—Empyema, Sacculated between the Heart and Lung. William S. Dodd.
112.—Severe Case of Eclampsia Complicated by a Marked Erythema Multiforma. James D. Voorhees.

113.— Excision of Hip: with Skiagraph Taken after Five Years. A. E. Isaacs.
114.— Bullet Wounds of Intestine; Operation; Recovery. George Sherrill.
115.— The Dracunculus Medinensis. John Patterson.
116.— Typhoid Perforation in a Case in which the Widal Reaction was Absent. Thomas W. Jackson.
117.— Wood Pulp as a Material for Poultices and Surgical Dressings. Frederick T. Gordon.
118.—*Contribution to Study of Gastric Crises of Tabes. Seymour Basch.
119.—*Ventral Fixation of Round Ligaments for Retroversion and Prolapsed Uteri. A Monae Lesser.
120.— Interesting Case of Hydrochephalus with Pseudo-Spastic Spinal Paralysis. Frederick Strange Kolle.

Cincinnati Lancet-Clinic, October 7 and 14.

121.—*Lichen Ruber Planus. M. L. Heidingsfeld.
122.— My Early Years in the Practice of Medicine. Geo. J. Monroe.
123.— Removal of Both Mammary Glands for Carcinoma. E. C. Brush.
124.—*Intoxicants: Alcohol and Alcoholism. Orpheus Everts.

Boston Medical and Surgical Journal, October 5 and 12.

125.— Treatment of Cerebral Tumors. P. C. Knapp.
126.—*School Seats. E. H. Bradford.
127.— The Boston Dispensary Clinic in Mental Diseases. A. C. Jelly.
128.— Division of a Ureter with Successful End-to-End Suture of Same in Case of Horse-Shoe Kidney. D. P. Allen.
129.— Erosions of Cervix Uteri. F. H. Davenport.
130.— Treatment of Cerebral Tumors. P. C. Knapp.
131.— Resection of Cecum and Portion of Ileum for Carcinoma. F. W. Johnson.
132.— A Tumor of the Labium. E. L. Twombly.

Philadelphia Medical Journal, October 7 and 14.

133.—*Finsen's Phototherapy. V. Bie.
134.—*Report of Case of Acromegaly, with Special Reference to the Eye-Symptoms. Wm. M. Leszynsky.
135.— Success of Operative Treatment of Facial Disfigurement. J. B. Roberts.
136.— Clinical Cases and Interesting Ideas. S. F. Brothers.
137.—*Specimen of Cyclocephalus. J. C. Falk.
138.— Is the Use of Tobacco Detrimental to Mankind? T. H. Marable.
139.— A Pneumatic Sigmoidoscope. Wm. V. Laws.
140.— Non-tuberculous Infectious Process in Bone. Arthur L. Chute.
141.—*Colloid Cancer of the Abdomen, and Its Significance Relative to Infection. E. D. Ferguson.
142.— Locating Foreign Bodies in the Eye; Results of Two Years' Work with Röntgen Rays. William W. Sweet.
143.— Case of Congenital Deficiency in Both Clavicles. W. F. Hamilton.
144.— Clinical Cases and Interesting Ideas. Samuel F. Brothers.
145.—*Preliminary Report of Case of Acute General Septic Peritonitis Treated by Continuous Irrigation with Warm Normal Salt Solution. Ernest Laplace.
146.—*Simple Method to Distinguish the Colonies of Typhoid Bacilli from Coli. J. A. Case.

Medical Review (St. Louis, Mo.), October 7 and 14.

147.—*Specimen of Cyclocephalus. J. C. Falk.
148.— Antitoxin in Treatment of Diphtheria. B. H. Portuondo.
149.—*Vesicorectal Anastomosis. Jacob Frank.
150.— Some Diagnostic Points in Heart Diseases, Especially in Infancy and Childhood. W. L. Johnson.
151.—*An Arm Saved after Being Run Over and Crushed by a Railway Locomotive. S. L. Kilmer.

Maryland Medical Journal (Baltimore), October 7 and 14.

152.— Case of Polymorphism. Henry A. Robbins.
153.—*Old Age and the Modifications in the Course of the Ordinary Diseases when they Attack the Aged. Marvin E. Nuckols.
154.— The Long Ago, Yesterday, and Today—Prescriptions of 1859, 1879 and 1899 Compared. Henry P. Hynson.
155.— Neuralgia in the Left Eye Following La Grippe. T. Chalmers Peeble.
156.—*Acute Inflammation of the Middle Ear. How Shall We Treat It? H. O. Reik.
157.—*Sarcoma of the Choroid. James J. Mills.
158.—*The Rubber-Finger Cot in Obstetrics. A. K. Bond.

AMERICAN.

1.—See abstract in JOURNAL, June 3, p. 1256.

2. **Actinomycosis in Man.**—Ruhräh's paper is a general discussion of the history of actinomycosis in the human species, and an analysis of some of the cases that have been reported. He gives credit to J. B. Murphy for reporting the first case in man.

3. **Surgery of Gall-Bladder.**—The experiences with 105 operations on the gall-bladder and bile-ducts are reported by Mayo, who employs, latterly in most cases, the Bevan incision, which gives a larger space for work in this operation and is easier of closure. The so-called ideal operation is not recommended and was not employed. He does not attempt to free the adhesions generally, as they usually disappear in time if the cause is removed. In cases where a contracted gall-bladder is found deep under the liver, so that it can not be sutured into the wound, he uses two or more long sutures of fine catgut passed through the wall of the gall-bladder below the opening, with a well of gauze strips two inches in width, made by passing one or more doubled thicknesses down just outside of the gall-bladder and tying them in place with catgut sutures. The side of a rubber drain is caught at a little distance from its extremity, by one of the threads of catgut on a needle, and the tube is then passed into the gall-bladder and tied in place. This firmly anchors the drain in position and prevents displacement. The external incision is partly closed up to the drainage, in the usual manner. He has found this a very satisfactory method in such cases. He thinks cholecystectomy should be more freely employed, and says: "Considering that the mucous membrane is the only part of the gall-bladder which gives rise to after-trouble, we have during the past year, in three cases, opened the gall-bladder and removed the mucous membrane to the cystic duct; at this point the mucosa is cut across, part at a time, and one or two bleeding points caught with forceps and tied, the duct being left open. The muscular and peritoneal coats are sutured into the incision and drainage established in the usual manner. It is surprising how easily this can be accomplished. The mucous membrane is tough and separates from the muscular coats readily. The adhesions to the peritoneal coat are only separated enough to explore the ducts. It does not require a long incision, nor does it necessitate prolonged manipulation, and yet, the essential part has been removed to the same extent as in the usual cholecystectomy. This modified operation adds little to the risks of an ordinary cholecystotomy."

4. **Inguinal Hernia.**—After discussing and describing the various operations for inguinal hernia, and especially an operation devised by himself and published in the *N. Y. Medical Record* in March, 1896, Stinson concludes as follows: From a study of the cases cited and comparisons of the methods used by various surgeons, he can only draw the following conclusions: 1. With careful antiseptic and aseptic precautions, provided the operator is skilful and familiar with special anatomic and pathologic conditions associated, an operation for the cure of hernia has a mortality at or about *nil*, or less than that associated with the condition previous to the operation. 2. Sterilized chromicized tendon, or in its absence, carefully chromicized catgut, is the most suitable material for buried sutures. 3. In closing the wound: *a*, the internal ring should be closed by sutures, placing the spermatic cord next to the pubic bone; *b*, the internal ring should be reinforced and the canal closed by sutures by uniting the internal oblique and transversalis muscles and their conjoined tendon to Poupart's ligament; *c* the cut edges of the external oblique aponeurosis and the pillars of the external ring should be sutured so that the pillars snugly embrace the cord. 4. In the great majority of cases the patients are cured by operation. 5. The operation described: *a*, restores the structures firmly and durably to their normal positions, relations and uses; *b*, has all the advantages of the other methods of operation, but none of their disadvantages; *c*, having many additional advantages, and fulfilling all the indications for a radical cure, should be followed by the best results.

5. **Osteomyelitis.**—Cushing here describes a case of removal of the shaft of the tibia, and, summarizing, the indications for treatment in cases of acute osteomyelitis are: 1. To save the patient's life and relieve pain by immediate operation to establish free drainage. The medullary cavity should be opened, pressure relieved, and infection checked. 2. If the bone is killed, as it usually and rapidly is in a few days, it should be removed. 3. The most favorable time for its removal is when the periosteum and granulation tissue is in its most active and regenerative stage, but before the process of calcification of the bone trabeculæ have shut the sequestrum within a compact, dense shell of involucrum. 4. This point is to be determined by frequent examinations of the sections of the periosteum with the microscope. It is shown by the presence of numerous fibroblasts, osteoblasts, and small trabeculæ in which lime salts are beginning to be deposited. 5. Clinically it can be recognized by the slight crackling sensation as the periosteum is incised, probably due to the crushing of the trabeculæ by the knife. 6. The periosteum at this stage resembles granulation tissue in color, density and vascularity. There is no macroscopic appearance of ossification. Bone will be formed from this elastic, flexible, periosteal layer. 7. This stage in this case was probably reached in the seventh to eighth week of the disease. 8. At this stage the necrotic bone should be removed by

incising the periosteum in the long axis of the leg and shelling out the sequestrum. 9. The periosteal sheath remaining should be closed by suture, leaving a solid cord or mass of periosteum buried in the center of the leg when in its most active bone-producing condition. 10. If areas of calcification of any extent or thickness are found adherent to the inner surface of the periosteal sheath, they should be dissected off. 11. The soft parts and skin superadjacent can be closed by suture. 12. The utmost care and most efficient means should be used to render the operation an aseptic one, for primary union is important. 13. The new bone is formed rapidly, apparently in eighteen to twenty-four days, when the operation is done at the time above indicated. At this time ossification is so advanced that the new bone is rigid. 14. If the operation is done too early, the growing periosteum is apparently injured, and its growth interfered with. 15. If too late, a rigid bony involucrum makes the removal of the sequestrum more difficult and forms a cavity which is very difficult to close. 16. It is demonstrated by the radiograph that the medullary cavity is reformed in the new bone. 17. The shaft of the bone is easier to restore than the epiphysis.

6. **Sterilization of the Hands.**—This article reports experiments made by Freeman as to the effects of methods of hand sterilization, and he concludes with the following propositions: 1. None of the methods of sterilizing the hands can be absolutely depended on. Many positive results are arrived at by means of faulty experimental technic, the culture-media becoming impregnated with antiseptics, the skin temporarily hardened by alcohol, formalin, etc., or the hands not subjected to sufficient maceration and friction in the culture-medium. 2. Under circumstances where it seems desirable to do so, much may be accomplished by sweating the hands in a hot-air oven, by wearing rubber gloves for some time prior to an operation, or by immersing the gloved hands in hot water. Mere prolonged soaking in very hot water, although not so effective as dry hot air, must have some favorable effects. It is difficult to understand, however, how the sweating method can dispose of all the microorganisms beneath the nails. The procedure will hardly be extensively employed, owing to its inconvenience. 3. Excessive brushing of the nails, as much even as the sensitive tissues will tolerate, seems merely to stir up the bacteria when carried beyond a certain point. We can hope to accomplish little by this means. 4. So far, the only really reliable means of rendering the hands aseptic is to incase them in sterilized rubber gloves. But if the gloves become torn, as they often do, the danger of infection is considerable, owing to the bacteria which have accumulated beneath, from perspiration. Coating the hands with various substances has been tried and found ineffectual. Cotton gloves, although they soon become contaminated by exudates from the skin, probably do some good, especially if frequently changed, by filtering out the bacteria, as it were, and preventing their entrance into the wounds.

9. **Urticaria of Mucous Membranes.**—Packard reports three cases of urticaria associated with asthmatic symptoms, and discusses the literature of the condition. He finds, in thirty four cases from the literature, a close relation between the skin lesions and the respiratory symptoms. The order of occurrence is not uniform, and while in many cases there seems to be a balancing between the cutaneous and respiratory lesions, yet the two systems are frequently involved at the same time.

10. **Infant Feeding.**—Koplik presents the results of studies on the increase of weight in artificially-fed infants, showing the variations by tabulated statements. He finds that the partial feeding of infants by the breast is of great advantage, and that they increase in weight faster than those totally fed artificially.

19. **Gastric Diseases in Childhood.**—This paper covers clinical lectures delivered by the author, and comprising: functional diseases, dyspepsia, acute and chronic gastric catarrh, febris gastrica, dilatation of the stomach, congenital stenosis of the pylorus, gastritis toxica.

22. **Cerebrospinal Meningitis.**—Roberts' article is quite a thorough discussion of the subject, and in his remarks on treatment he advocates full and free venesection as early as the disease is diagnosed, calomel in 1/2-grain doses every half hour until 2 or 3 grains are taken, then a saline laxative and an enema if necessary. When these have taken effect he gives a full hypodermic dose of morphin and atropin, to an adult, repeating it as indicated to secure quiet and comfort as far as possible. Cold is applied to the head and spine, and if effusion has occurred and we can keep up the vitality of the patient, he gives iodid of potash in full doses. If vomiting is an early symptom, a drop of croton-oil in place of the saline after the calomel will be apt to give good results. He does not worry about temperature below 103, and is doubtful as to lumbar puncture, though he has not had experience with it. If the dangerous symptoms subside, morphin is replaced by bromids and chloral in connection with the iodid. The bladder must be looked after, the amount of urine kept for inspection at each visit, and the catheter used if necessary. He thinks inunctions of the unguentum Credé would not be likely to do harm and may possibly be useful.

24. **Treatment of Suppurating Bubo.**—Royster describes the following method of treatment of this condition: He washes the skin over the affected part, with soap and water, then with alcohol, followed by a 1/2000 bichlorid solution, using cotton mops for the application. Then a small incision, not over one-half inch in length, is made over the softest and most projecting point, with a sterilized bistoury, and pus evacuated. Peroxid of hydrogen is then injected until it ceases to produce gas, the excess being washed out by the bichlorid solution. After thoroughly drying the parts, a 10 per cent. ointment of iodoform and vaselin, which has been liquefied by heat, is introduced to fill and distend the abscess cavity, in which it quickly solidifies. To facilitate the solidifying a large piece of cotton wet with a cold bichlorid solution is applied over the opening. A pad of dry cotton on this, and a bandage, complete the dressing. Usually this does not have to be changed, for in a week the suppurating cavity may be found to be obliterated. In over a dozen cases thus treated the dressing was not disturbed until it was finally removed, and the patients were up and about within two days. He thinks the advantages of this method are as follows: It is comparatively painless; it avoids long confinement to bed and repeated dressings; it can be done anywhere, and the results are good. He has tried it in other varieties of abscess in different regions and finds it equally useful. Other substances than iodoform may be used in the ointment.

26.—**Lepride of the Palm.**—Montgomery describes and illustrates the case of a boy who suffered from a lesion of maculoanesthetic leprosy of the palm of the hand, together with corresponding lesions on the back and elsewhere. Search for the bacilli, however, was unavailing, as is often the case in this special form of the disease. The only other instance he has been able to find of this special lesion is in the two cases reported by Von Bergman, though tuberculous leprosy has been observed in this situation.

28. **Lodgment of Gonococcus.**—Swinburne reports four cases of infection of para-urethral and mucocutaneous follicles and follicle at the frenum, by the gonococcus. In the two paraurethral cases, infection showed itself by a pustule occurring within a very short time after infection, and before the disease in its ordinary form had appeared. The others were of later appearance and one case had given rise to a false diagnosis of chancre.

30.—See abstract in JOURNAL, May 27, p. 1172.

31.—Ibid.

33. **Rational Therapeutics.**—Henry discusses the subject of inebriety and its treatment, the question of degeneracy, the advances in therapeutics, and suggests at the close that there should be a law compelling the keeping of a family register giving a complete personal record of each member of a family with all his defects and acquired vices, and all latent family peculiarities that can be discovered by the physician. Such a record kept through many generations would be invaluable. Then when parties wish to marry, the judges should appoint a board of physicians who should examine their family record and make a thorough and unbiased investigation before the license would be given. He thinks such a law and a law to unsex habitual criminals and possessors of incurable transmissible diseases would rapidly improve the moral, physical and intellectual tone of society, and would eradicate some of our worst diseases, such as tuberculosis, insanity, epilepsy, etc.

34.—See abstract in JOURNAL, May 27, p. 1174.

36. **Uric Acid Diathesis.**—According to Danforth, lithemic

patients fall into three groups, which he here describes. By a lithemic patient he understands one whose urine is habitually strongly acid, high colored and of high specific gravity, now and then slightly albuminous, with mucin and occasionally small hyaline casts, and which deposits uric acid or mixed urates and perhaps oxalates on cooling. Such patients complain of their liver, of indigestion, constipation, have coated tongues, foul breath, etc. The first of these types he calls the plethoric. The patients are mostly middle-aged, active business men, frequently overworked. He reports a case and discusses the kidney symptoms, calling attention to a paper read by him on catarrhal nephritis, in 1885, which has received little attention, but in which he described what he still believes is a chronic catarrhal condition of the renal tubules entitled to consideration as a distinct pathologic entity. Besides this condition he also thinks there exists in these cases a certain degree of interstitial hyperplasia of the kidneys and liver not resulting in true interstitial nephritis. Still another pathologic factor is the constant presence of lithic acid and some xanthin compounds, which has much to do with this irritative hyperplasia. The second type is the neurotic or nervous. This presents the same dyspeptic symptoms as the former, but the subjects are often considered as simply neurasthenic. The third group is the anemic, in which there is slight albuminuria and a few casts, and frequently a tendency to temporary melancholic depression, with general gastro-intestinal symptoms. The patients are mostly women overworked mentally or physically. He thinks we often make an error in overlooking the lithemic element in these cases. The treatment of these types varies. In the plethoric type the vigorous use of antilithics and cholagogues for a considerable period, and in lessened doses thereafter, and a non-nitrogenous diet are required. In the neurotic type change of scene, neuro-tonics and rest; and in the anemic type, which is most difficult to treat, the use of antilithics in small doses should precede the use of tonics, and he is much given to the use of caffein preparations in this class. Iron is badly borne, but phosphate salts and strychnin are useful, and manganese sometimes very valuable.

37. **Sunstroke.**—Mitchell considers sunstroke as due to disorders of the heat centers of the medulla and both heat exhaustion and insolation are but different manifestations of the same general condition. Forty-one cases came under his care in the summer of 1898, 23 of thermic fever and 18 of heat exhaustion. Of the 41 cases, 6 died, only one of these being a heat exhaustion case. The immediate cause of death in 4 was failing circulation causing pulmonary edema; 2 died of collapse of the lungs. The complications were: convulsions, marked in 4 cases, mild in 7; cerebrospinal meningitis varying in severity, and the before-mentioned lung collapse, probably due to pulmonary embolism. The sequelæ so far as observed were practically *nil*, though he thinks if the history could be traced, after-consequences would be found in the majority. Alcoholic cases and fleshy and powerful men seemed to be the most frequent subjects of thermic fever, while women, and thin and old men suffered most from heat exhaustion. He describes the symptoms and treatment. The first thing in the treatment is to reduce the temperature, best accomplished by ice-baths and applications. The next is the physiologic salt solution, and he lays special emphasis on the benefits thus derived, giving the credit for its suggestion to Dr. F. A. Packard of Philadelphia, though he claims he was the first, himself, to practically employ it. As regards bleeding, he thinks it will often bring instant relief by overcoming congestion and removing some of the toxic elements, but its use requires discrimination and care. Ice-water enemata can not be too highly extolled and should be used in conjunction with the ice bath. Antipyretics were only used in mild cases when the ice bath was not required. Aconite was employed with advantage when the pulse was full and the heart in a nervous storm. If necessary, cardiac and respiratory stimulants, such as strychnin and cocain must be used freely, controlling the resulting spasms with chloroform.

50. **Spanish War Experiences.**—Fowler gives a readable account of the work of the medical department of the 7th Army Corps during the Spanish-American War. He speaks strongly of the sanitary carelessness of the Spanish authorities in Havana, though he praises their methods of record keeping. He gives also an interesting account of a Cuban insurgent hospital visited by him, and a visit to the insane asylum at Mazzaro, Cuba, which was found in a terrible condition.

51. **Pathology of Nasal Septum.**—After noticing certain rudimentary structures of the nose, such as the organ of Jacobson, Wright calls attention to the erectile tissues of the nose and its connection with the sexual organs and the reflex relation of the nasal and genital organs. In conclusion he briefly mentions the papillomata, angiomata and sarcomata occurring in this locality, and the septal spurs and deviations.

53. **Uterine Hemorrhage.**—Langstaff describes cases of uterine hemorrhage, and suggests the possibility of such accidents being due to abnormal or diseased conditions of the adnexa or of the ovary alone.

62. **Nervous System.**—In this lecture, Punton considers reflex, trophic, secretory, mental or psychic symptoms, etc.

64. **Subclavian Arterial and Venous Murmur.**—The nature, mechanism, anatomic conditions and causes of subclavian arterial and venous murmurs are here noticed by Abrams. From an examination of a large number of patients he formulates the following conclusions as to its mechanism: 1. The subclavian arterial murmur is an independent—autochthon—and rarely a transmitted murmur. 2. Its point of maximum intensity is the fossa of Mohrenheim, with feeble tendency to propagation. 3. It is heard most often on the left side, less frequently on both and least frequently on the right side. In order of frequency it is heard at the height of inspiration, at the end of expiration and after momentary suspension of respiration. 4. It is usually a succession of murmurs uniform in character and intensified by certain maneuvers, notably deep inspiration, forced expiration, suspension of respiration and voluntary stretching of the neck. 5. One of its chief characteristics is its momentary duration, disappearing usually after a few deep inspirations. 6. Its dependence on the phases of respiration distinguishes it from all transmitted murmurs. 7. It may be present at one and absent at a subsequent examination, and neither its character nor duration is ever uniform from one examination to another. 8. The position of the patient may influence its genesis, but this is never sufficiently uniform to be of practical value. 9. A phthisical lung is not specially propitious to its occurrence, as it is found nearly as often in healthy as in phthisical persons. 10. It was present in 36 per cent. of all healthy persons examined, advantage being taken in this enumeration of re-examinations and those propitious factors which determine its occurrence, viz.: respiration and decubitus. 11. The venous subclavian murmur was only heard in six individuals with a preponderance of its occurrence on the right side. 12. The arterial subclavian murmur could be artificially induced on the left side in nearly 80 per cent. of all individuals examined, and on the right in about 65 per cent. of the cases by a simple maneuver, viz: raising the arm gradually until it assumes a vertical position, while auscultating the Mohrenheim fossa during the time that the arm is brought to the latter position, the murmur suddenly appearing at some time during the execution of the movement. 13. By the foregoing maneuver the subclavian venous murmur could be induced on the right side in 43 per cent. of all persons examined. He advocates the following method for detecting it: Placing the pectoral end of the stethoscope in the fossa of Mohrenheim, we listen for the subclavian murmur. If the latter is not heard we slowly raise the arm of the patient corresponding to the side auscultated, until it is audible. The murmur may not be demonstrable until the arm is elevated to a level with the shoulder, or until it assumes a vertical position. This maneuver evokes the subclavian phenomenon by narrowing the lumen of the subclavian artery, for coincident with the elevation of the arm the radial pulse becomes less and less evident until, when the arm has attained the vertical position, the pulse is no longer palpable. This diminution in the pulse volume is more manifest on the left than on the right side. In a certain percentage of persons examined, the maneuver of raising the arm gives rise to a subclavian venous instead of arterial murmur, while in other persons both murmurs are distinctly audible. The soft, musical, continuous hum of the venous murmur can not be confounded with the arterial murmur. Like the artificial venous murmurs produced by pressure of one of the large veins by means of our stethoscope, so may the sub-

clavian venous murmur be explained, viz.: that by raising the arm we elevate the first rib, which in turn narrows the subclavian vein. The more frequent occurrence of the subclavian venous murmur on the right side is explained in the same way as we explain the increased frequency of the jugular venous murmur on the same side.

68. **Typhoid Fever.**—Law reports a case of a local epidemic of typhoid fever under conditions in which the origin was mysterious. The well was 180 feet deep and absolutely protected from surface water, the physical difference of the well and surface water easily demonstrating this. There had been no cases of fever in the region for many months. The sanitary arrangements were as perfect as could be expected in the situation, and all measures that could be employed were taken to prevent the spread of the disease. Notwithstanding this, two cases occurred in addition to those first involved, and finally portions of the skin and muscles of a toad were drawn from the kitchen sink. Examination of the well showed an opening through which the reptile might easily have fallen into the well, and he accounts for the epidemic by assuming that the toad's diet of flies contained the typhoid germs. During the first week of the previous October a number of men were employed, and it is presumed that one or more of them might have been suffering from the incipient stages of typhoid.

71. **Hypermedication.**—Knox's article is a general criticism of the tendency to overdo medication with antipyretics and cathartics. He points out that fever is not in itself always a matter to be dreaded, and the laity should be educated to this fact and not be drugged to excess. As regards cathartics, he believes that we overdo their use, and that the public themselves are monomaniacs to a great extent on this subject.

74. **Foreign Bodies in Trachea.**—Referring first to the frequency of the accident of foreign bodies in the trachea in children, and the symptoms, Capps calls attention to a new method of diagnosis of these bodies and their position by means of the phonendoscope. By using the small rod with the button on the end that is recommended to be used in outlining the heart, etc., and placing it over the trachea at various points, the existence and location of the foreign body can be readily ascertained. If, as often happens, it lies just beneath the vocal cords, allowing free ingress of air but preventing its free egress, the phonendoscope will convey the unmistakable clink or metallic sound produced by the sudden closure of the glottis. Any change of position of the foreign body can also be readily determined in this way. He reports two cases in which this method was employed with success.

76. **Perineo-Vaginal Incision.**—Fritsche treats the subject of episiotomy, giving diagrams and describing technic. He concludes that these incisions are indicated: 1. In stenosis of the vagina from the causes already mentioned. 2. In rigidity of the muscular structures of the pelvic outlet in old primipara. 3. In the high forceps or version in primipara, when the presenting part has not had time to dilate the muscular ring of the pelvic outlet and delivery is demanded. 4. In the occipito-posterior positions, when the occiput rotates into the sacral cavity. 5. In narrowing of the pelvic outlet, which we have in the generally contracted, funnel-shaped, or kyphotic pelvis, and when the transverse diameter is not narrower than 8 cm.

78. **State Sanitariums for Consumptives.**—The questions proposed by Phelps are: 1. Is it best to have any sanitariums? 2. Should the state equip and conduct such a sanitarium? 3. Should such a sanitarium be located within the borders of the state? As regards the first question, he remarks that it is not so easily answered as might at first appear. The scare as to the contagiousness of consumption has, perhaps, gone too far, and the result will be an increase of the severity of the misfortune of those afflicted. He admits that a sanitarium would be a great advantage to the poorer classes, and he is inclined to answer the question in the affirmative. The second question as to the function of the state is only answered in the affirmative on the plea that we secure greater public safety by such an establishment under the care and at the expense of the state. The answer to the third question is modified by the consideration of climate, and he suggests a combination and co-operation of different states in the foundation of consumptive colonies.

87. **Enlarged Glands in Children.**—The article by Schleich is an interesting discussion of the subject of enlarged lymph glands, and he offers some rather striking views in regard to them. He believes that the lymph glands may be defensive organs, and quotes instances where malignant infection occurred after their excision, evidently in close connection with this fact. He is inclined to think that they serve to produce immunity against certain diseases, and explains, for example, the acquired immunity to scarlatina and measles, by the closing up of the lymph radicles on the site of entry of the virus. Only in this manner can be explained the fact that children with acquired immunity to epidemic scarlatina may still contract surgical scarlatina. He thinks the direct danger to which we expose a given location of the body by removing its proper ganglia would be much more apparent were it not for the fact that total extirpation is in most cases impossible. He quotes from Manfredi, who has written in favor of this view, and argues that it is no longer justifiable to extirpate, off-hand, the lymph ganglia of given localities, the neck, arm-pits, groin, etc. He pleads for conservatism, especially in this line of surgery.

90.—See abstract in JOURNAL, June 10, p. 1320.

91.—Ibid, p. 1321.

93. **Cataract.**—The subject covered by Kalish's paper is summarized by him as follows: 1. Immature cataract is due to local conditions dependent on general systemic causes. 2. Senility is rarely a direct, but may be a predisposing, cause. 3. Fluids containing perverted aliments resulting from defective metabolism supplied to the lens through its nutritive stream may be considered an exciting cause. 4. Deficient blood-supply, thus reducing the quantity furnished, may be considered a contributing cause. The following conclusions may be drawn: 1. Immature cataract may be regarded as a largely preventable disease. 2. It may, by properly directed treatment, local and constitutional, be prevented, arrested, retarded or cured. 3. The circulation of the blood must be regulated. 4. The faulty digestion may be rectified. 5. Constant supervision of the eye must be maintained by a competent ophthalmologist, that eye strain be relieved, and all changes in refraction be promptly remedied. 6. Treatment by conjoined manipulation and instillation should be instituted at the earliest possible moment. 7. Finally, if local and constitutional treatment should not provoke a favorable issue they will establish a more nearly normal state of the ocular tissues, and if an operation be found necessary, this improved condition of the ocular structures will ensure a larger degree of success.

94. **Chlorosis.**—Southworth's paper gives a thorough discussion of the symptoms and treatment of chlorosis, though he does not detail, to any extent, some important nervous complications of the condition. The treatment consists in the administration of a suitable preparation of iron, together with the proper regulation of the patient's mode of life and measures for the relief of the disturbed functions.

95. **Dupuytren's Contraction.**—Two cases of Dupuytren's contraction with microscopic examination of the tissues, which was afforded by the death of the patients, are here reported by Nichols. Unlike a case recently reported by him elsewhere, these contractions were of long standing, and a comparison with the results found in the previous case show that in the early or developing period cellular and vascular elements occur in great abundance; while at a later stage, when the lesion is fully developed and stationary the cells and vessels diminish, leaving the abnormal tissue a dense fibrous mass; and that the hypertrophied fibrous bands are developed by the activities of the abundant connective-tissue cells, which are proliferated in especial profusion along the course of the small blood-vessels. The lesion is essentially a hypertrophy, the new tissue being similar to the pre-existing normal fascia. Any etiologic explanation of Dupuytren's contraction would have to take into account the active proliferation and the fibroplastic action of the connective-tissue cells and their relation to the vascular elements. The presence of Pacinian bodies in all the three cases microscopically examined by him is perhaps worthy of mention.

96. **Acetanilid in Ear Suppuration.**—Ten cases of suppuration of the middle ear treated with acetanilid are reported by Libby. He advises that only the most finely-powdered acetanilid be used, and but little applied to the middle ear and canal in acute suppuration and in most cases of the chronic form.

In some obstinate cases of the latter, prompt and permanent checking of the discharge is brought about by packing the middle ear with this drug, but this is unsafe unless the patient is seen every day and carefully watched against retained discharges from caking of the powder. In making these applications, he first cleanses out, as far as possible, the parts, uses peroxid of hydrogen, and after thoroughly wiping it out he insufflates the acetanilid powder.

97. **Uterine Diagnosis.**—The two points made in Swan's paper are the advantage of a more common use of the fingers in explorations of morbid conditions of the uterus, and the value of certain methods of microscopic examination of its mucosa. As regards the first, he remarks that in this country this method has been neglected and only advocated by Banga of Chicago. He describes, however, Leopold's method as practiced in Dresden, with the use of aseptic laminaria tents used under complete aseptic precautions, for dilatation so as to permit the introduction of the finger. Among the indications for this method he reckons: 1. Hemorrhage associated with the retained products of conception. 2. Persistent bleeding connected with some enlargement of the uterus not related to pregnancy, for example, a suspected uterine polyp. 3. Submucous and intramural myomata may be detected in the same way, and lastly those cases where we have an offensive or purulent discharge, suggesting malignant disease, sloughing myoma, etc. The dangers of the method disappear with conscientious following of Leopold's method, and Leopold himself has used it in many hundreds of cases, septic and otherwise, without bad results. He explains the freedom from infection by the fact that the tent seldom produces complete occlusion and is always expelled within ten to twelve hours, by muscular contraction, so that a partial obstruction for this brief period could hardly materially increase or render general existing local infection. Swan here reports two cases illustrating the advantage of this method of diagnosis. In the second part of his article he describes Amann's method of obtaining large pieces of uterine mucosa for microscopic examination. A medium-sized, slightly dulled curette is introduced to the fundus and withdrawn in one stroke, the mucosa brought away being deposited on a piece of gauze. After the blood and mucus have been allowed to separate from the specimen without handling it is dropped into a bottle containing a 10 per cent. formalin solution. This operation is repeated until the curetting is complete. The bottle should be immediately labeled with the name of the patient and the date. Swan describes Pick's method of manipulation in which the staining and examination can be completed and the diagnosis reached, as a rule, in twelve to 15 minutes, as follows: 1. Remove tissues from salt solution, place on ether microtome, freeze slowly, and cut. 2. Place in 4 per cent. formalin solution a quarter of a minute. 3. Remove to formalin-carmin solution one minute. 4. Transfer to water a quarter of a minute. 5. To 80 per cent. alcohol a quarter of a minute and remove air bubbles. 6. To 100 per cent. alcohol a quarter of a minute. 7. To mixture of two parts xyiol, one part pure carbolic acid. 8. Place on slide and mount in Canada balsam. The quickness of this method is facilitated by the use of "Jung's Hobel" ether spray freezing microtome, and by the mixing of the formalin and carmin stain, thus hardening and staining the specimen at the same time. He recommends Robb's system of studying the sections and recording the results, and reports two cases.

98. **Septic Thrombophlebitis.**—Ward calls attention to the possible fatal complication of peritonsillar abscess or quinsy, the possibility of infection from such disease, and reviews the literature. He adds two cases personally observed, with postmortem. While septic thrombosis, or thrombophlebitis is not a common complication of quinsy, he has attempted to show, not only the possibility, but its serious danger and the need of a more guarded prognosis in the treatment of this disease than is sometimes given.

100. **Nasal Stenosis.**—After having used nearly every operation worthy of mention, that was known to him, and having been disappointed by failure in all, Booth adopted the method of Dr. Morris Asch (see JOURNAL, June 17, p. 1381), which he has found to meet the indications. He details his method which he believes to be the same as that of Asch.

101. **Chronic Spinal Neuritis.**—Brush calls attention to the importance of chronic neuritis and describes cases of different types in which the neuritis was confined to one or more members, the arm or the leg, or was multiple. In the latter form he finds the prognosis is bad, two of his cases terminating in locomotor ataxia.

102. **Gangrene of Lung.**—The subject of pulmonary gangrene is discussed by Levings, who points out the dangers of the condition and also those of operation even when it is imperatively demanded. The points he specially makes are as follows: 1. All cases of pulmonary gangrene which are progressive and not absolutely diffuse should be operated on. 2. The gangrenous area should be localized by physical examination, aided by the use of the aspirating needle, and, if necessary, by multiple resection of ribs. 3. In the absence of pleuritic adhesions, the general pleural cavity should be shut off either by a gauze packing or by a row of sutures. 4. After thorough opening and free drainage of the gangrenous cavity it should be daily cleansed by gentle irrigation. 5. The cavity should be tightly packed with iodoform gauze.

103. **The Stomach and the Uterus.**—Murdock reports a case of aggravation of gastric difficulties during menstruation, and of dysmenorrhea due to gastric ulcer. The cause of the trouble in this case, he thinks, was the presence of solid food in the stomach, for both the attendant anemia and the circumscribed spot of tenderness were present in each case after the dysmenorrhea had disappeared.

104. **Asepsis.**—After going over the details of the subject, Beck sums up his paper as follows: 1. The superficial surface of the skin of the patient and of the surgeon's hands is sterilized after the principles set forth above (green soap, scrubbing, alcohol, etc.). The atmosphere being innocuous, all inorganic material being made aseptic by boiling, the skin surface being asepticized, and the skin glands which contain bacteria being hors de combat, it becomes evident that the only possible source of infection remaining would be the rough manipulations on the part of the surgeon or his assistants. 2. Aseptic gloves are worn by the operating surgeon, at least during the skin incision. The assistant who passes the instrument and the one who attends to the wound itself wears gloves throughout the whole operation. 3. After incision, the wound margins of the skin are covered with sterile napkins, which are fastened to the wound surface underneath the skin margins, with miniature forceps, so that the skin wound is not touched at all during the subsequent manipulations. 4. The knife used for the skin incision must not be used for further incisions. The operation should be performed as rapidly as possible. 5. For uniting the wound margins of the skin the subcutaneous method should be preferred. 6. Forcible manipulations, especially blunt operating, should be avoided. 7. The surgeon and assistants wear sterilized suits or gowns. Their heads must be covered with sterilized caps, because in bending over the field of operation it often happens that the heads of the surgeon and his assistants come in contact, whereby infectious material might be introduced into the wound. 8. Long beards are entirely unsurgical. 9. If a surgeon should suffer from rhinitis, tonsillitis, etc., he should use the most minute local precautions, or would better omit operating until recovery. It is self-understood that a surgeon should regard it as a crime to operate so long as he suffers from even a slight furuncle on his hand.

105. **Surgical Treatment of Gall-Stones.**—Ferguson discusses the various methods of operation for gall-stones, and considers that the operation of selection depends somewhat on the pathologic condition on opening the abdomen. If the gall-bladder is so diseased or atrophied that its attachment to the colon or duodenum is impracticable, cholecystotomy or cholecystectomy may be performed. In all other cases cholecystenterostomy is the ideal operation, because: 1, drainage is made into the intestinal canal instead of externally; 2, convalescence is made more rapid, and 3, the patient is perfectly cured. He thinks operation is indicated in acute attacks attended with jaundice lasting longer than ten days or two weeks without improvement, and if unattended with jaundice, lasting a week or more without improvement, and in all chronic recurrent cases. He reports four cases.

106. **Dislocation of Lower Jaw.**—McGraw reports a case of old dislocation of the lower jaw, in which a mistaken diagnosis had been made, and which he was able to reduce by mak

ing an incision under the zygoma after repeated attempts to replace it without such operation. Recovery was perfect. He has only been able to find three or four cases of similar procedure in the literature.

118. **Gastric Crises of Tabes.**—Basch's paper is a lengthy one, discussing the whole subject of gastric crises, their symptoms, complication, varieties, etc., with illustrative cases. He divides the condition into the following subdivisions: 1. Gastric crises with sudden onset; 2, gastric crises with gradual onset; 3, gastric crises with marked prominence of isolated manifestations, e.g., *anorexia tabetique* (Fournier), *variete fatulante* (Fournier), *vomissements noirs* (Charcot), etc. All these forms may be accompanied either by pain or vomiting or by both. If gastric crises be the only manifestation, they will not serve by themselves for the certain diagnosis of locomotor ataxia, but since they have certain well-marked characteristics, their recognition may serve to indicate its possible existence. These characteristics are: 1. Absence of symptoms of organic disease of the gastro-intestinal tract. 2. Sudden onset. 3. No initial chill. 4. Great intensity of symptoms, sometimes rapidly, sometimes gradually increasing in severity. 5. Rapid pulse with no fever. 6. Absence of any local condition in the region of the stomach, and absence also of other factors to explain the severity of the symptoms. 7. Absence of specific diagnostic features in the vomitus. 8. External circumstances have no influence on the natural course of the attack. 9. Spontaneous cessation. 10. Rapid convalescence. The differential diagnosis is discussed at length, from ulcer of the stomach or duodenum, perigastritis, cancer, gastro-succorrhea, cholelithiasis, and cerebral and uremic vomiting. As indicated in the characteristics stated above, the prognosis as regards life or recovery from attack is generally good. As far as treatment is concerned, he thinks he has had the best results, as regards drugs, with oxalate of cerium, antipyrin, and nitrate of strychnin, aside from morphin, which of course, will afford relief in most cases. The rules of diet are laid down. The question of providing sufficient nourishment during the attack is an important one and may give some difficulty, but if no organic disease of the digestive organs exists, rapid progress may be made to full diet. The general principle is to keep the nutritive standard of these patients as high as possible, since we have no means of absolutely suppressing the gastric crises or diminishing their frequency.

119. **Ventral Fixation of Round Ligaments.**—Lesser describes an operation for ventral fixation of the round ligaments when Alexander's operation can not be performed on account of their laxity or weakness. The procedure for the operation is as follows: "The patient is prepared for celiotomy. If curettage is necessary, it should be done first. The repositor is placed in the uterus, with its handle standing horizontally. After the operative field is made aseptic and proper dressing placed around it, an incision is made transversely from about 2 cm. inward of the point anatomically denoting the internal abdominal ring on one side, to the same point on the other side and about 25 cm. above the pubis. The incision is made through the skin and fascia, down to the aponeurosis of the external oblique; it should not be made funnel-shaped and not higher up than stated. The integument is then drawn upward and downward, respectively, in order to lay the parts free for the second incision. From this point I proceed differently in various cases. The simplest method of all is the median incision, particularly so when there are adhesions or other internal encumbrances. In the latter case the incision has to be made of sufficient length to permit the necessary manipulation for correction. If there are no complications beyond the direct object of the operation, a short longitudinal opening is made through the linea alba and peritoneum. The uterus is then placed in position by means of the repositor, and the position of the ligaments and the surroundings ascertained. A silkworm or kangaroo suture is then inserted with the hernia needle about 0.5 cm. inward from the outer angle of the incised skin, and passed horizontally, not through the skin, but through muscle, fascia, and peritoneum. While the outer end of the suture is held with forceps, the inner serves to indicate the place to which the ligaments should be attached. If the uterus is held in normal position with the repositor, the ligament can be picked up with pincettes almost opposite the suture, but before the needle is carried under it the exact place for the attachment should be measured. The needle is then carried around the round ligament at the required place, necessarily taking along the broad ligament covering it. The thread should be long enough to allow the suturing while the ligament is relaxed again. The hernia needle is removed, and the eye-point needle is passed parallel with, but 1 cm. below, the place of entrance of the first or descending suture. The eye needle is then threaded with the ascending strand of the suture, which is drawn up and out of the abdomen, and held there with forceps—after a little practice all can be done with the hernia needle alone. A second suture is made through the abdomen and ligament in the same manner as the first and about 0.75 to 0.85 cm. inward from it. This may be done without measurement, but the difference between the sutures outside must be as nearly as possible the same as that between the sutures in the ligaments. A third suture is passed at the same distance from the second, giving in all an attachment of about 1.5 to 2 cm. The ends of sutures should be held outside with forceps, and not be tied immediately, so that the ligament may remain relaxed, to serve as a comparative landmark for the other side. While working on one side, I usually keep the other incised parts covered with a warm pad, and after changing the pad the opposite side is attended to in the same manner as the first. When all the sutures are in, and before the ligaments are drawn up to be tied, I abrade the portion of the ligament and peritoneum—by scraping with the scalpel or curette—along between the sutures, so that a union may take place and become more firm. After this the sutures on either side, beginning with the most outward one, are drawn up closely and tied firmly, but not too rigidly. The ends are cut short and buried under the skin and fascia, which are often closed, preferably by subcutaneous suture."

121.—See abstract in JOURNAL, September 23, p. 794.

124.—Ibid.

126. **School Seats.**—Bradford describes and illustrates the various defects of seats for school children, and shows their dangers and inconvenience. In conclusion he describes a chair constructed on new lines, which he illustrates and thinks will meets the indications better than anything now in use.

133.—See editorial, p. 1049, also p. 1036.

134. **Acromegaly.**—Leszynsky describes a case of acromegaly with special reference to the symptoms, giving illustrations of the patient and of the visual fields. He explains the mechanism of the eye symptoms by the mechanical pressure.

137.—See ¶ 147.

141. **Colloid Cancer of Abdomen.**—Ferguson discusses the etiology and pathology of cancer, and questions the modern parasitic theory of the disease. He says: "After a somewhat carefui review of the evidence relative to the parasitic origin of cancer, and the statistics of the numerical and relative increase of the disease, the conclusions which appeal to my judgment are as follows:

"1. The dissemination of cancer to or through remote areas of an individual patient's body is a fact so frequently observed that we must accept the idea of some kind of infection.

"2. The rarity of direct infection from person to person, though the opportunity for such infection must have occurred in a great multitude of instances, as between husband and wife, surgeon and patient, and in other ways, shows that the infective agent is one not readily transplanted, or that it requires a specially-prepared soil.

"3. The vital properties of the anatomic elements of the growths furnish fully as adequate an explanation of this limited infective power, as would any protozoan bacillus, or yeast fungus; on the other hand, we are not in a position to deny the existence of extraneous organisms which may be the source of an irritation to the cells which results in the production of cancerous growths."

As regards the recent statements as to the increase of cancer he also doubts whether they have any more basis than the more accurate diagnosis and recognition of the disease would afford.

145. **Irrigation in Acute Septic Peritonitis.**—Laplace reports a case of severe acute septic peritonitis treated by irrigation with normal salt solution, from which he deduces the following conclusions: 1. That the peritoneal cavity stands, with perfect safety, a continuous irrigation with normal salt

solution at a temperature of 100 degrees, during seventy-four hours. 2. That in this case the infection of the peritoneum, which had been so violent and rapid, effectually ceased under this treatment. The symptoms, pain, vomiting and distension ceased and there was no constipation. 3. The patient stood the irrigation with comfort; not complaining of cold, for the warm water was so copious in its flow as not to have time to cool. 4. The copious irrigation, it is believed, dissolved and carried off the toxins as they formed; it reached the most dependent portions of the peritoneal cavity, and removed infectious material; therefore, effectual drainage was established. It acted as a tonic to the heart. No doubt some of this solution was absorbed into the system. During three days the infection was held in abeyance by the antiseptic action of the salt, and phagocytosis had free scope to destroy the infectious bacteria permanently. 5. This method has not been used before. It has given great benefit in an apparently hopeless case. The method is in accord with already well-established surgical principles, only novel in its application to the peritoneum. It may prove a valuable aid in the treatment of heretofore fatal cases of peritonitis, and worthy of further trial.

146. **Typhoid and Colon Bacilli.**—The following method of distinguishing the colonies of the typhoid from the colon bacilli has been introduced by Piorkoski of Berlin, and is here detailed by Case. The culture-medium is prepared as follows: Take 100 parts of urine that has undergone the ammoniacal fermentation and add .5 parts of peptone and 3.3 parts of gelatin, the whole heated over a water-bath for one hour, filtered and put into test-tubes with the usual precautions, sterilized in a steam bath of a temperature of 100 C. for fifteen minutes. The following day they are sterilized for only ten minutes, in order not to impoverish the solidifying properties of the gelatin. Then three tubes are inoculated as follows: The first tube is inoculated by two loops of the stool that has been rubbed up in a mortar, and a second tube is inoculated from this first one by four loops, and a third by six or eight loops from the second dilution. The contents of each tube are then poured into sterilized Petri dishes, using a dish for the contents of each tube, stood on ice for ten minutes or in a cool place for an hour, to allow of moderate coagulation of the solutions. The dishes are next put into an oven and kept at a temperature of 22 C. for twenty-four hours, when the typhoid colonies are perceptible as transparent filamentous bodies alongside of the coli colonies, which are rounded with well-defined edges. The colonies may be found in all three dilutions, but more abundantly in the first and second, whereas a few hours longer may be required to find them in the third dilution. Dr. Piorkoski claims that by this method the typhoid colonies have been determined as early as the third day of the patient's indisposition in every case.

147.—This specimen is reported in two papers. See ¶ 137.

149.—See abstract in JOURNAL, October 14, p. 976.

151.—Ibid, October 21, p. 1041.

153. **Old Age.**—Nuckols notes the modifications of diseases occurring in the aged, more especially the bronchitis and pneumonia. He concludes with remarks on the care of health in old age. The diet should be simple, but nutritious. The patients should aim to eat simply to repair, and as the functions are much reduced, very little is required to maintain life. They should eat as do children—often and in small quantities. The evening meal should be light and unstimulating. We should caution them especially about overloading the stomach and allowing themselves to become constipated, as this is one of the most frequent exciting causes of apoplexy. Alcoholic liquors, if drunk at all, should be taken with caution. Fresh air is very essential to the aged; in fact, more so than at any period of life, because, on account of the condition of the lungs, hemostasis is imperfect. It is entirely wrong to keep an old man shut up in a warm room and allow him to breathe and rebreathe the same air. It is a common thing to find an old man, heavily clothed, drawn up by a hot fire, and dreading a breath of fresh air for fear of taking cold. The clothing should be warm, but light, and he should be made to take outdoor exercise every day. When called on to treat the aged, we should make a thorough examination, especially of the lungs, heart and kidneys, for reactions in the aged are not marked, and some serious condition may exist without any outward manifestations. In all diseases we should test the urine from day to day, and should ever be ready to anticipate and combat the depression, so often seen in the course of diseases in the aged, by the administration of tonics and stimulants.

156. **Inflammation of Middle Ear.**—The treatment of acute otitis media is described by Reik. The first symptom requiring relief is pain, and this has best been obtained by local blood letting. If the tympanic membrane is found to be red and bulging, it should be immediately incised at this point, making a free incision which will permit of good drainage from the tympanic cavity. The operation should only be done after thorough sterilization of the canal and of the knife. Allow free bleeding and even encourage it by warm applications. For this purpose a hand syringe will do, though a fountain syringe or douche is better. The water should have been boiled and used as hot as can be borne. Another very useful means of bleeding is the old way of leeching behind the auricle and over the mastoid, and it is also aided by douching. He questions the value of local remedies poured into the ear. Repeated syringing with large quantities of hot water would probably do as well. When, however, it is insisted on and the patient will not undergo paracentesis and leeches are not at hand, the best application is probably that suggested by Theobold: Cocain murias gr. ii, atrop. sulph. gr. i, aq. dist. 3i; or cocain (alkaloid) gr. ii, atropia (alk.) gr. i and oleum amygdalæ dulc. 3i. Warm and pour eight or ten drops in the ear. After suppuration has occurred, pain usually subsides and the treatment required is cleanliness. Syringe the ear carefully with boiled water or boric acid, or weak bichlorid solution, and dry carefully with absorbent cotton. If it continues the case should be submitted to the examination of a specialist and a suppurating ear should not be allowed to run on indefinitely without treatment.

157. **Sarcoma of Choroid.**—Mills finds this condition to occur with equal frequency in both sexes, is not hereditary or due to injury, and frequently is very insidious in its stages. The patient often does not become aware of the defect until the tumor has become quite large and sight has become affected. The eye should be removed as soon as the diagnosis is made, the optic nerve being divided as far back as possible.

158. **Rubber Finger-Cot in Obstetrics.**—Bond recommends the use of a thin rubber finger-cot in obstetric examinations and claims that it suffices in all ordinary cases of labor. He believes that there is a vast amount of subacute illness after simple labors due to infection, and that this simple precaution is therefore the more necessary.

FOREIGN.

British Medical Journal, September 30.

Remarks on Finsen's Phototherapy. VALDEMAR BIE.—In this article Dr. Bie, Finsen's chief assistant, explains the theory and methods of the most recent treatment of certain bacterial diseases by the chemical light rays as carried on in Copenhagen. The experimental data on which the method is based are: 1. The bactericidal property of the chemical rays. 2. The power of these rays to produce an inflammation of the skin—erythema solare. 3. The power of the chemical rays to penetrate the skin. The first of these has been much studied, but as even the strongest sunlight is too slight for therapeutic purposes, Finsen concentrates the light by means of apparatus to be described. As regards the second point, the older view that solar erythema was due to heat rays was experimentally shown to be an error by Widmark, and Finsen's later experiments have confirmed his finding that it is due to the blue and violet rays. Godneff and Finsen have proven the power of these rays to penetrate the skin, by placing sealed glass tubes containing sensitive silver salts under the skin of dogs and cats and exposing them to sunlight, when the silver was found to be blackened. Control experiments with animals kept in the dark confirmed the findings. Finsen has also proven that they penetrate bloodless tissues most readily. The apparatus employed consists in lenses for concentrating sunlight, so that it has sufficient effect. For cooling the sunlight the lenses are made of a plain glass and a curved one, the space between being filled with a bright blue, weak, ammoniac solution of copper sulphate. This cuts off a large portion of the heat rays, but interferes very little with the chemical ones. A somewhat

more elaborate arrangement is described for use with the electric light, distilled water being employed instead of the copper solution. By these means some 350 cases of lupus vulgaris have been treated with very satisfactory results, and illustrations are given showing cases. In five cases there was very slow improvement, but they were the sole exceptions. For the present, at least, only the skin, the hard palate, the front part of the septum nasi, the tongue, and the mucous membrane of the cheek can be cured by this method, but in absolutely none has the treatment been without some effect. A disproportionately large number of cases were severe, as the treatment was advised by physicians for just such cases. During the treatment the skin swells, reddens and a bulla may appear, but in no instance has necrosis been observed. The excellent cosmetic results of the treatment are due to the fact that there is no destruction of the tissues, healthy or diseased. Both the diseased tissue and the skin surrounding may be treated without harm, and the treatment is painless. Relapses have been very infrequent and of slight extent. Their occurrence at all is attributed to the fact that the treatment has been discontinued for economic reasons at the earliest possible moment, as a rule. If it could be carried on, further relapses might not occur. Lupus erythematosus thus treated is not so sure in its results as lupus vulgaris, though many cases recovered permanently. A few cases have improved very slowly, with a constant tendency to recurrence. As only twenty-eight cases altogether have been thus treated, the material is not sufficient to draw conclusions as to the cause of these individual differences. Seven cases of alopecia areata had been cured by this method up to January, 1899, and from the later experiments it would appear that even the old decalvans forms were curable, though only after long treatment. These results decidedly support the theory of the infectious origin of alopecia areata.

Interaction Between Ovaries and Mammary Glands. STANLEY BOYD.—The author reports three cases, one each of cure, partial success and failure, in the treatment of cancer of the breast by removal of the ovaries, and discusses the question of the interaction between these organs. His working hypothesis in regard to these cases is that the internal secretion of the ovary probably exercises an important influence on all the cells of the body; that it may vary in quality pathologically, but not physiologically, and that when varied in some unknown way the ovarian secretion favors the growth—possibly even the action of the cause—of cancer, influencing even the invading epithelium or the resisting tissues. The removal of the ovaries, therefore, in this case would leave the tissues unhampered, and might turn the scale in their favor for a time, while, on the other hand, ovaries secreting normally would have no effect.

Interaction Between Ovaries and Mammary Glands. AMAND ROUTH.—The questions whether ovulation can occur in the absence of the mammary glands and lactation take place in the absence of the ovaries, are both answered in the affirmative by Routh. The further question as to whether there is any evidence showing that the mammary glands are affected by pelvic states, is, in his opinion, supported by facts which he relates, to be answered in the negative.

Lancet, September 30.

Pharmacology of Some South African Plants. JOHN MABERLY.—The South African non-official drugs noticed by Maberly are the three varieties of *Monsonia* which seem to have special advantages in forms of acute and chronic ulceration of the stomach and intestines. The *Pelargonium antidysentericum* is also mentioned, and in one case a tincture seemed to have remarkable results. He also mentions an unknown plant, of which he was unable to produce specimens, but the beans of which he found most effective in the South African fevers. Still other drugs are the *Bulbine aloöides*, used for rheumatism; the *Blepharis capensis*, a Kaffir remedy for anthrax, which he thinks is worthy of investigation; the *Callilepis laureola*, useful in whooping-cough; and a very powerfully poisonous plant, the *Hyenanche globosa*, which he thinks may possibly be worthy of experiment and analysis.

Early Diagnosis of Myxedema. CHARLES W. CHAPMAN.—This author reports three cases illustrating the difficulty of early diagnosis of myxedema, and mentions a special sign which he has found useful in early diagnosis. It is somewhat similar to the "Bright's eye" in chronic renal disease, and consists in a sort of sloppy appearance of the conjunctiva, due to the presence of mucin. When he finds the conjunctiva thus affected, and no albumin nor evidence of renal trouble, he looks out for myxedema, and has been more than once put on the right track by this sign.

Somatose and Meat Extracts. THOMAS STEVENSON and ARTHUR P. LUFF.—The authors publish an analysis of somatose and a series of experiments made with its use. In each case a quantitative examination of the urine was made. Their conclusions are as follows: 1. Somatose is a true meat nutrient possessing restorative and stimulating powers. 2. It is well borne by delicate patients. 3. It improves digestion and causes no gastro-intestinal disturbances. 4. It has a favorable effect on general metabolism. 5. It has no irritant effect on the kidneys and never gives rise to albuminuria, albumosuria, or peptonuria. In those cases in which albuminuria existed prior to the administration of somatose, the albumin gradually disappeared from the urine during its administration.

Leprosy in Madeira. J. ASHBURTON THOMPSON.—The Island of Madeira furnishes an isolated area in which leprosy has been endemic for at least the last 400 years. Thompson has looked up the records and tried to find out what data were afforded as to the origin and spread of the disease. In older times lepers were somewhat isolated, but had to wear a distinctive dress, as did also their relatives, and pauper lepers were confined in the lazaret up to thirty years ago. Since that time they have been free to go about as they please, and there is no dread of them among the other population. At the present date there are about seventy on the island, not equally distributed but more numerous in some localities than others, a very small proportion coming from Funchal, the chief town. The greater the altitude, the more common the leprosy, but this is explained by the poorer conditions of life among the mountaineers. Food seems to have little effect. Dr. Goldschmidt, from whom these facts were obtained, has little faith in heredity of the disease, and thinks that the etiology is unknown. Thompson concludes his paper as follows: "If the history of leprosy in Madeira, regarded as a study in epidemiology remains for the present an unexplored field, it is otherwise with the conditions under which the disease has persisted during the last twenty-six years. The details of this period seem to be sufficiently full and explicit. The author gives them from his own knowledge and observation. From perusing them, however, the reader who began without any prepossession rises with wonder at the conclusion which is formally drawn, for he can not help seeing that if lepers were indeed maintained by communication with the sick, if it were maintained by indirect communication, if natural resistance to leprosy in particular could be withdrawn by a lifetime led in *la misere*, or if diminished resistance were indeed the determining cause of the maintenance of leprosy on areas of its endemicity—then at all events Madeira should be ravaged by this disease. But what is the fact? Only seventy cases can be counted there at this day."

Bulletin de la Societe de Pharmacie de Bordeaux, August.

Oxidizing Ferment of Fluids of the Organism. R. DUPOUY.—The saliva contains an "indirect oxidizing ferment," that is, a substance which decomposes oxygenated water and has all the properties of a soluble ferment, independent of the presence of micro-organisms. It is also found in small quantities in the sweat, nasal secretions, tears and in the blood, in the latter proportional to the number of leucocytes. Dupouy concludes from his research that this oxidizing action is due to the presence of the white corpuscles in the fluids, and asserts that the leucocytes, besides their phagocytic properties, possess the property of secreting an indirect oxidizing ferment.

Bulletin de l'Academie de Medicine (Paris), September 19.

Paralyzing Vertigo. GERLIER.—For the first time in the history of this venerable institution, the Académie Médecine adjourned over the hot weather. Among the communications presented when it reassembled was Gerlier's detailed description of the peculiar affection which he has observed among farmers in summer. In the midst of his work the man suddenly stops and remains immovable; his tools slip from his hands; ptosis of the upper lids makes it impossible for him to open his

eyes. His head is bent by paresis of the extensor muscles of the back of the neck. If he tries to walk, his legs give way under him. In other cases the attack comes on suddenly, while milking; he can not use his fingers. When he tries to eat he can not open his mouth. There are no other symptoms except possibly a rachialgic pain; between the attacks the subject feels normal. The attacks recur once or several times a day or at intervals of several days, and one to five months may pass before they entirely disappear. House epidemics have been observed. The same affection has been noted in Japan, and Mura's report on an epidemic of it there in 1896 coincides with Gerlier's earlier published communication. He attributes it to some unknown microbe or cryptogamous parasite which finds specially favorable conditions for growth in barns, stables, etc.

Guaiacol in Differential Diagnosis of Tuberculosis and Malarial Infection. MONCORVO.—It was announced some time ago that painting the skin with guaiacol was an effective measure to reduce fever. (See JOURNAL, xxvi, p. 996, etc.) Moncorvo has established that while this antithermic action is manifest and intense in the reduction of the fever of tuberculous subjects, it has no influence whatever on malarial fever. Hence it is valuable as a means of differentiating these two febrile states, and also as a diagnostic measure when the two are associated. He has always found, in his experience at Rio Janeiro, that the combined use of quinin and local applications of guaiacol arrested both when associated. His observations only refer to children and synthetic guaiacol—alpha—with which the abdomen was painted, using one or two grams.

Journal d'Hygiene (Paris), September 28.

Human Fertilizers. P. CARLES.—Duclaux has estimated that the execretions of twenty persons are sufficient to fertilize two acres of ground and more, and states that the organic or fertilizing nitrogen is eight times more abundant in the urine than in the feces. Carles has long been urging that human excrements should be used for fertilizers to benefit the soil instead of wasting them in death-dealing pollution of the water-supply and slow ruination of the soil. Public hygiene, social economics and agriculture are all directly involved in this great waste in our cities, which also entails an enormous waste of running water to sweep urinals, etc. clean. He advocates the use of specially constructed, easily emptied and disinfected reservoirs to collect the urine in public urinals, hotels, barracks, depots, etc., stating that manufacturers prefer this material and farmers would regard it as a gold mine. He calculates that a thousand persons excrete during the twenty-four hours, in the urine alone, 33 kilograms of organic nitrogen and 155 kilograms of phosphates: that is, nearly 400 metric tons of nitrogen a year. At 30 cents a kilogram this amounts to $10 a day per thousand inhabitants, and for a town with 250,006 inhabitants, to $2,500 per day. Forty to fifty thousand men using the public or semipublic urinals a day would deposit in the reservoirs $500 worth of organic nitrogen.

Presse Medicale (Paris), September 23 and 27.

Basedow's Disease and Coexistent Myxedema. M. FAURE.—An observation is here described at length, of a woman whose cardiac nervous system had become disorganized and the autopsy revealed a possible cause for this disorder in the nervous system, in the compression of the cervical sympathetic by the hypertrophied thyroid gland. This hypertrophy was not clinically appreciable during life, but the gland was in reality three times normal size, demonstrating that there may be compression of the sympathetic by an unrocognized goiter. In the case reported, exophthalmic goiter developed in the course of six years, then came indications of cardiac insufficiency and two years later the Basedow's disease gradually regressed; with it the indications of cardiac insufficiency, any myxedema developed during the following three years. The myxedema was treated with thyroid extract and the cardiac insufficiency with digitalis, keeping them under control until the eleventh year, when they increased to a fatal termination. The chief features of the case were the progressive tachycardia and arhythmia, coinciding with hypertrophy of a healthy heart without appreciable lesions of the myocardium or valves, terminating in exhaustion of the heart and fatal circulatory insufficiency. The autopsy confirmed the difference between the cutaneous and subcutaneous myxedematous thickening of the skin of the face and the cardiac edema of the lower parts of the body. Faure concludes from this observation and the experience of others that Basedow's disease is not a disease but a clinical syndrome which may be produced by several, possibly multiple causes.

Can White Swelling Be Cured With Retention of Mobility of Articulation? GALOT.—The writer replies in the affirmative to his question, and cites instances in which he has succeeded with massage and mobilization during several months, in restoring practically normal motility, after curing the tumor with intra-articular injections of camphorated naphthol, ten grams at a time, and evacuating the liquid, treating the white swelling like a cold abscess. He first tries the massage and passive exercise alone, and if the affection subsides its non-tuberculous character is demonstrated, but if it becomes aggravated by this treatment he then punctures and proceeds as above. Tuberculin might prove valuable in diagnosing dubious cases.

A Sign of Abdominal Aortitis. L. BRODIER.—Potain insists on the fact that an inflamed artery loses some of its elasticity and has a tendency to stretch out longer under the influence of the waves of blood sweeping onward from the heart. As it stretches it bends in and out, and the area of dulness is correspondingly increased. He therefore states that an increased area of sternal dulness over the aorta is an indication of inflammation of the first portion of the vessel, and is not due exclusively to dilatation of the cross. If it were we would have to accept that when the right edge of the aorta is 2 cm. beyond the sternum, its left edge must be an equal distance from it on the other side, indicating that the vessel was 4 cm. wider than normal, while such an increase in the diameter of the aorta is only encountered in certain forms of aneurysmal dilatation. The increased area of dulness is in fact due to the lengthening of the inflamed aorta, which, being held firm in front by the heart and behind by the intercostal arteries, can only stretch out longer by exaggerating the arc, which it describes at this point, extending up and out, and carrying with it the branches emerging from its convexity, the brachiocephalic arterial trunk in particular. The right primary carotid is also lifted, but this escapes our present methods of exploration. The lifting of the right subclavicular is, however, evident, as Faure noted in 1874, and this elevation of the right subclavicular above the upper margin of the clavicle is now accepted as a valuable sign of what we have been erroneously calling dilatation of the cross of the aorta. The writers of this communication establish that these same laws apply to the abdominal aorta, and describe three observations which demonstrate that the deviation of this vessel, if not connected with a deformity of the spine or due to a congenital malformation of the artery, is a certain sign of abdominal aortitis. It is not always evident, as it requires a certain amount of adherences between the walls of the aorta and the adjacent tissues to keep the artery from slipping downward along the spine as it grows longer, but when found the sign can be relied on.

Progres Medicale (Paris), September 9 and 23.

The Plague in Our Epoch. J. NOIR.—The permanent foci of plague from whence spread the germs of extensive epidemics are the Tripolitan and Ouganda districts in Africa; Assyria in Arabia; Irak-arabi; Kurdistan; the valley of the Indus at Garhwal; Yunnan in China and the region around Lake Baikal. Since 1880 the disease seemed to have been limited to these foci, until 1895, when it appeared at Hongkong, soon invading Canton and Formosa. The following year Bombay was decimated, and the disease has since flourished along the Persian Gulf. It thrives alike at low and high altitudes, but extremely hot weather, 45 to 50 C., extinguishes it. Like all infectious diseases, it is fed by alcoholism, poverty and filth. Infection is most frequent by means of clothing and direct contagion from man to man or from the smaller animals. The characteristic bubo is an ovoid tumor the size of a nut, in moderate cases, with two or three smaller ones around it. The deep ganglia may be affected and lead to all the accidents of infectious adenopathy. In about a third of the cases the buboes are accompanied by gangrenous carbuncles which may reach to the muscles and even the bones. There are also a number of other cutaneous accidents. Charcot admitted three varieties: fulminating, serious and benign, but Netter, in his exhaustive study of the plague in recent numbers

of *Presse Medicale*, describes five varieties: the classic, the septicemic, which includes most of the fulminating cases usually accompanied by hemorrhagic accidents, the pneumonic form, scarcely differing from ordinary pneumonia except by the pink, spumous and aqueous sputa with numbers of bacilli; the intestinal, which is not thoroughly established as yet, and the ambulant, which is Charcot's "benign" form. The carbuncles and petechiæ have been unusually frequent and the buboes rare in Persia and Kurdistan, while the pneumonic form has been more frequently noted at Oporto and Alexandria. The mortality of epidemics ranges from 50 to 60 and even 95 per cent. Serum treatment is the only real progress yet accomplished by science in the struggle against the plague, and the results of this are not yet entirely satisfactory. It requires further technical improvement. The German, English, Russian and Austrian missions that have in turn tried the Yersin antitoxic serum, are still skeptic in respect to its efficacy in curing the disease. As a preventive measure it has proved valuable, but the immunization attained with it only lasts forty days, and Haffkine has improved on this by actually vaccinating subjects with bouillon cultures killed by heating, which ensures immunity for a year. All plague victims are cremated at Oporto. Noir quotes, in conclusion, that a mocking echo seems to be transforming our boasted motto: *sanitas sanitatum, omnia sanitas*, into *vanitas vanitatum*.

New Hooking Forceps. L. LONGUET.—Each blade of the long slender forceps is slightly narrower in the center than at either end, and forms a slight elastic curve. The end terminates in four teeth at right angles to the blade, which lock the two blades close together. The hooking action is thus concentrated at the point of the forceps where it belongs. It is also an excellent clamp for small stumps, upper layer of broad ligaments, etc., holding them with a firm, even, elastic pressure. There are no grooves nor crocodile teeth, as Longuet considers them unnecessary and only inviting rust. Quénu asserts that with two of these forceps applied to the cervical stump or margin of the vagina in subtotal or total abdominal hysterectomy, the stump is held and managed better than with twenty Kocher forceps. They have none of the disadvantages of the latter, with all their good points.

Revue Heb. de Laryngologie, etc. (Bordeaux), September 9 and 23.

Remote Results of Operations for Adenoids. BRINDEL.—The reflexes engendered by the presence of the vegetations disappear with the cause. Persons affected with ear troubles consecutive to or concomitant with the vegetations, derive great benefit from the adenotomy, whatever the affection—external ear alone excepted. Adenotomy sometimes induces a swelling of the mucosa over the turbinate bones; in some patients it seems to favor the development of a purulent coryza; in others it leads to the cure of an atrophying coryza, with or without ozena. In about half the patients affected with vegetations and concomitant hypertrophy of the tonsils, the latter subsides in the course of a few months, from the effect of the operation on the vegetations alone. Recurrences of adenoid vegetations are known, but they are rare, amounting only to 1.7 per cent. in 1300 cases. From the clinical point of view the recurrences behave like the ordinary vegetations with which they are histologically identical, and are amenable to the same treatment.

Tuberculous Perforations of Soft Palate. GROSSARD.—Only two observations of this lesion are on record, but Grossard has recently had two other cases under his charge. Both were tuberculous subjects. In one the velum slit horizontally, forming a triangular perforation, and in the other lengthwise, dividing it in two. The uvula also sloughed off. Syphilitic antecedents were denied and long-continued specific treatment on suspicion was utterly ineffective.

Pan-Sinusitis of Face With Myxomatous Degeneration of Nasal Mucosa Cured. MOLINIE.—The success attained in this difficult case was probably due to the method of operating: the frontal sinuses were first operated on, and then the cells of the ethmoid masses and every diverticulum that could be discovered were opened and cleansed at the same sitting. The operated cavities were then isolated, and communication with the nose closed by packing the lower portion of the sinus with iodoformed gauze with a cotton dressing applied to exclude the air. As soon as the patient was able to undergo the second stage of the operation, the lower sinuses were opened, curetted and sutured and, after inspection and the additional cleansing required, the upper sinuses were also definitely sutured.

Deutsche Medicinische Wochenschrift (Berlin) September 21.

Traumatic Affections of Mucous Membrane of Stomach. R. STERN.—Analyzing the cases on record, it seems that a simple traumatic laceration of the gastric mucosa may cause the same symptoms which we are accustomed to consider, the classic syndrome of ulcus ventriculi, and respond to the same treatment. The symptoms of traumatic chronic lesions are in general the same as with ulcus rotundum; the prognosis is not very favorable, although Quincke has had one case much improved by systematic lavage of the stomach and diet. Stenosis of the pylorus may result from traumatic perigastritis as well as from cicatricial constriction, and there is always danger of secondary infection of the wound of the stomach. It is not necessary that severe phenomena involving the affected organ, such as hematemesis, appear at once. In Krönlein's two cases of traumatic cicatricial stenosis of the pylorus there was no particular pain, no vomiting, and yet the resected portions showed traces of serious defects resulting from the trauma; no carcinoma, but evidences of perigastritis. It is not necessary that the accident injure the organ directly, as a fall on the feet has been known to tear the stomach lining, but a casual connection between the accident and tumor formation should only be accepted when the accident was adapted to injure the organ. There was no scientific ground for the recent decision in which a fall on the back of the head and left shoulder was accepted as the traumatic origin of intestinal carcinoma a few months afterward. Possibilities are not sufficient basis for medical certificates and we urgently need careful observations of single cases followed in detail to dispel the uncertainty at present prevailing in this branch of science. We have no grounds for the assumption that a single violent injury predisposes to the development of malignant tumor, which is more probable with frequently repeated mechanical injuries, chronic inflammation or cicatricial formations. If there are no indications that the stomach was injured at the time of the accident, there is no ground for the assumption of a traumatic origin for a neoplasm appearing later. The tumor may have existed unnoticed at the time of the accident, and great attention should be paid to this possible contingency in examining soon after accidents. A latent carcinoma which received the impulse to grow from the trauma would not make any manifestations for a few weeks at the earliest, and would scarcely develop into a palpable tumor under several months. It is impossible to designate any time limit as the latest for the apparition of a tumor of traumatic origin, but in a general way it may be stated that a carcinoma appearing later than two or three years after the trauma—which is the limit of the development in by far the largest majority of cases—may possibly owe its origin to the trauma, but the evidence is not sufficient for a medical assertion to that effect.

Suggestion Therapeutics in Internal Medicine. A. HOFMANN.—Eleven cases are described in detail, treated by suggestion alone. It was strikingly successful in habitual constipation and insomnia, hysteric cramps and neurasthenic headache. Each case was followed and no possible ill-effects of the treatment could be discovered; the patients were cured as perfectly as could have been accomplished with drugs, while the deleterious effects of the latter were avoided. Hofmann considers it the duty of the physician to try suggestion in case of failure of other methods, observing that the lack of knowledge of the true nature of electricity has not deterred us from applying it in therapeutics, and we should resort to hypnosis in the same spirit.

Abdominal Fat Necrosis. P. GRAWITZ.—An observation is described in detail, corresponding to Truhart's description (JOURNAL, September 16, p. 731), and accepting the theory that the protracted action of the fat-splitting ferment elaborated by the pancreas produces fat necrosis, but it is still unexplained how the pancreatic juice gets into the fat tissue, and also why obese elderly persons are especially affected by these extensive fatal processes—Balser's disease. In one case a laparotomy was performed to arrest hemorrhage after a wound from a shotgun, and the tissues were found normal. Death ensued from hemorrhage later, and at the autopsy it was found that the pancreas had been perforated by one of the shot, allowing the escape of the juice and producing typical fat necrosis wherever it had penetrated, exactly as in Hildebrandt's experiments on cats.

Societies.

COMING MEETINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee, Chattanooga, October 24-26.
New York State Medical Association, New York City, October 24-26.
Medical Society of Virginia, Richmond, October 24-26.
American Public Health Association, Minneapolis, Minn., October 31.
Oklahoma Territory Medical Society, Guthrie, November.
Western Surgical and Gynecological Association, Des Moines, Iowa, December 27-28.
Indian Territory Medical Association, Wagoner, December.

Clinical Society of Maryland.—Dr. James M. Craighill was elected president for the ensuing year; this is one of the most flourishing of the Baltimore local societies, having about 250 members.

Idaho State Medical Society.—The newly elected officers of this society are: president, Ed. E. Maxey, Caldwell; vice-president, R. L. Nourse, Hailey; secretary, J. R. Numbers, Weiser. The next place of meeting is Boise.

Stephenson County Society of Physicians and Surgeons.—At the annual meeting of this Society, held in Freeport, Ill., October 12, officers were chosen as follows: president, J. B. Leitzell, Orangeville; secretary, J. F. Fair, Freeport.

Minnesota Academy of Medicine.—The Academy held its annual meeting in St. Paul, October 11, and elected the following officers: president, C. E. Riggs, St. Paul; vice-president, H. M. Bracken, Minneapolis; secretary-treasurer, R. O. Beard, Minneapolis.

Hodgen Medical Association.—The next meeting of this Association will be held in Pleasant Hill, Mo., next January. At the meeting of October 9, in Nevada, Mo., officers were chosen, as follow: president, R. F. Hulett, Rich Hill; secretary, J. L. Warden, Pleasant Hill.

Tri-State Medical Society.—The eleventh annual meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee will be held in Chattanooga, October 24, 25 and 26. The railroads will give reduced rates on the certificate plan. Distinguished members of the profession will be present and discuss papers.

Detroit Academy of Medicine.—The annual meeting of the Academy was held October 10. Dr. Robbins, the retiring president, gave an address on "Conservatism in Medicine and Surgery." The following officers were elected: president, Geo. Duffield; vice-president, L. E. Maire; secretary and treasurer, H. D. Jenks; director, Leartus Connor, elected for three years.

Detroit Medical and Library Association.—At the meeting of October 9, Dr. Angus McLean exhibited a new intestinal anastomosis forceps, devised by him. He demonstrated its uses on intestines taken from the cadaver. The instrument is constructed on the principle of an obstetric forceps, with a series of different-sized incomplete rings for the clamping portions. These rings have a flattened shaft that fits into a groove and niche in each handle—necessitating but one set of handles for the complete set of rings.

Conference of Health Officials.—The fourth annual conference of health officials in Michigan, under the auspices of the Michigan State Board of Health, will be held in Grand Rapids, October 26 and 27. The subjects to be especially considered are: "Bacteriology in Its Relations to the Public Health"; "Sewerage and Water-Supply"; "Water Purification"; "Typhoid Fever;" "Tuberculosis Among Animals and in Man;" "Local and General Health Administration," and "Duties and Powers of Local Boards of Health."

Wyoming Medical Association.—The third annual session of this Association closed at Laramie, October 11. The following are the newly-elected officers: president, George P. Johnson, Cheyenne; first vice-president, H. L. Stevens, Laramie; second vice-president, J. C. Hammond, Nanna; third vice-president, Fred Horton, New Castle; secretary, I. R. Swigart, Laramie; treasurer, E. E. Lovers, Hanna. The next meeting will be held in Cheyenne, on the second Tuesday in October, 1900. A resolution was introduced and passed requesting the legislature to provide a building for the valuable Wyoming fossils.

European Associations for Advancement of Science.—The British and French associations held their meetings simultaneously on each side of the Channel, in September, and each spent a day with the other, while Marconi telegraphed over to Dover without wires. The German association also met in Munich during the month, for its seventy-first annual congress of "German Naturalists and Physicians," the scientific ardor undampened by the unprecedented freshets which kept many members away.

Utah State Medical Society.—The fifth annual meeting of this Society was held in Salt Lake City, October 3 and 4. The large number in attendance and the interest shown in the papers indicated a substantially healthy growth of the society. The following officers were elected for the ensuing year: president, A. S. Bower; first vice-president, E. S. Wright; second vice-president, J. S. Gordon; secretary, J. C. E. King; treasurer, U. Worthington. On the evening of October 4, the county society tendered the state society a banquet at the Alta Club, a very enjoyable ending to an unusually interesting meeting.

Washington Medical Society.—At the meeting of this Society, held October 4, Dr. John Chapell, chairman of the Committee on Public Health, presented the semi-annual report of his committee, presenting the plans adopted for investigating the health of the pupils of the public schools of Washington, D. C. He estimates the school attendance at 50,000, 10 per cent. of which number will be thoroughly examined medically, special reference being had to tuberculosis. The investigation, when completed, is intended to show a ratio of disease only. Lack of funds prevents a more extended investigation.

Washington Obstetrical and Gynecological Society.—The 303d meeting of the Society was held on October 6. Dr. T. C. Smith, the president, read his annual address. He referred to the excellent work done in the Society during the past and previous years and recommended a more thorough study of pathology and frequent presentation of specimens to the Society. He reviewed modern study of disease and referred to recent advancements, and dwelt at some length on the value of the Army Medical Museum at Washington as an educator in general and special medicine. Dr. Smith has just completed his second term as president.

Medical Association of Greater New York.—At the meeting of this Association, held October 11, Dr. Austin Flint, in assuming his duties as president, congratulated the Association on the fact that it started off with a charter membership of over 200, a fact quite unparalleled in the history of medical societies in New York City. Health Officer Doty had expected to present an account of his researches in regard to the yellow fever antitoxin serum, but owing to his absence in Europe his paper is to come at a later date. The paper of the evening was by Dr. A. A. Berg, on "Subphrenic Abscess." He reported three cases from his researches in Mount Sinai Hospital, presenting one of the patients who had been successfully operated on.

Cumberland County Medical Society.—The semi-annual meeting of the District Medical Society of Cumberland County, New Jersey, was held in Millville, N. J., October 10. The Society seems to be growing both in membership and interest. Resolutions in memoriam of the late Dr. Hamilton Mailly, who for several years served the Society efficiently as its secretary, were adopted. Dr. J. C. Applegate was elected secretary ad interim. Dr. L. L. Hand was selected for reporter for the en-

suing year. Dr. H. W. Elmer presented a paper on "Historical Reminiscences," covering a period of nearly thirty years. Several interesting cases were reported and discussed.

Northwest Arkansas Medical Association.—This Association was organized at a joint session of the Washington and Benton County Medical Societies, held at Springdale, Ark., October 10. The following officers were elected: president, H. H. Canfield, Siloam Springs; first vice-president, D. Lindsey, Bentonville; second vice-president, H. D. Wood, Fayetteville; secretary and treasurer, J. H. Brewster, Prairie Grove. The Association will meet on the first Tuesdays in June and November, the next meeting at Bentonville, in June, 1900.

Fulton County Medical Society.—At the recent session of this Society, held at Canton, Ill., the feasibility of the establishment and maintenance of a hospital at Canton, was discussed. It was agreed that such an institution would be a benefit to the county, as well as to the city. The subject was referred, for further consideration and report, to a committee of which Dr. Shallenberger is chairman. The other members are E. H. Heise, Canton; P. H. Stoops, Ipava; J. W. Connelly, Farmington, and A. J. Baxter, Astoria. The election of officers resulted in: president, E. W. Regan, Canton; first vice-president, Dr. Bennett; secretary, Dr. Ray; treasurer, Dr. Harrison. The next meeting will be held at Fairview, December 5.

American Academy of Railway Surgeons.—A feature of the meeting of the Academy, held at Omaha, Neb., October 13 and 14, was a speech by Dr. A. I. Bouffleur, Chicago, president of the International Association of Railway Surgeons, urging the amalgamation of the two societies. Dr. Bouffleur believes that by banding together as one body, the Association could exert greater influence, command more respect, and do more good toward developing and furthering the scientific interests of railway surgery than by having two separate and distinct societies. At the conclusion of his remarks, the president of the Academy, Dr. Grant, appointed a committee, consisting of Drs. J. T. Eskridge, John E. Owens, and D. S. Fairchild, to consider the practicability of effecting such a union. The committee reported subsequently that it was inexpedient at this time to accept such a proposal. The Academy has 142 active members, including those elected at this meeting, and 8 honorary. Officers for 1900 are as follows: president, Charles A. Wheaton, St. Paul, Minn.; first vice-president, A. F. Jonas, Omaha, Neb.; second vice-president, J. T. Eskridge, Denver, Colo.; secretary and editor, T. B. Lacey, Council Bluffs, Iowa; treasurer, D. S. Fairchild, Clinton, Iowa. The next place of meeting will be St. Paul, Minn., the time to be fixed by the executive board.

Mississippi Valley Medical Association.

Abstract of Proceedings of the Twenty-fifth Annual Meeting, Held at Chicago, Oct. 3-6, 1899.

(Continued from Page 979.)

MAMMOTH OVARIAN TUMORS: REPORT OF A CYST WEIGHING 245 POUNDS.

DR. JAMES B. BULLITT, Louisville, Ky., presented this paper. Only growths weighing 100 pounds or more have been considered as mammoth tumors. A search through literature has developed reports of 23 such tumors. Brief summaries of these cases are given. The largest of these tumors weighed 202 pounds.

The essayist adds a twenty-fourth case by reporting in detail the case operated on by Dr. A. M. Cartledge, Louisville, in May, 1897. The tumor sac and contents together weighed 245 pounds. There were a great many adhesions encountered and the operation was prolonged. The woman rallied from the shock and was in good condition at the end of five days, when obstruction of the bowel became manifest, the patient dying on the seventh day.

In considering the twenty-four cases, it is observed that twenty-one cases were operated on. Of the fifteen in which recovery took place the average tumor weight was 129 pounds; while of the six in which operation was followed by death the average weight was 181 pounds.

There are manifestly but three methods of dealing with these tumors: 1, immediate extirpation; 2, preliminary tapping, followed in a short time by extirpation; 3, tapping repeated as often as necessary to relieve uncomfortable distension.

To illustrate that life may be long sustained by constant tapping and withdrawal of fluid, the case of Dr. Ap. Morgan Vance is cited, where the woman was tapped 179 times between the ages of 34 and 80 years, it being computed that in this time 21,480 pounds of fluid were withdrawn.

In so far as any conclusions can be drawn from the study of these 24 cases the following are submitted:

1. The fatality from such tumors is directly proportioned to the size of the tumor.

2. Extensive adhesions to the parietes and viscera militate against successful operations, but are second in importance to the size of the tumor.

3. Preliminary aspiration followed by extirpation in a few days is apparently no safer than immediate operation.

4. Marsupialization is contraindicated in tumors of mammoth proportions.

5. Successive tappings are sometimes tolerated over a long period of years, but lead ordinarily to exhaustion and death in a comparatively short time, a few years.

6. When death occurs after operation it is most apt to be immediate, within a few hours, as the result of shock. If this first danger is passed safely, the fatal issue is apt to be the result of obstruction of the bowel, especially in those cases where extensive adhesions are present.

DR. A. H. CORDIER, Kansas City, Mo., mentioned the case of a woman, colored, 43 years of age, who had carried an ovarian cyst for eleven years. The cyst with its contents weighed 160 pounds. The patient died on the ninth day following operation from exhaustion.

CONSERVATIVE SURGERY.

DR. S. L. KILMER, South Bend, Ind., reported an interesting case of an arm saved after being run over by a railroad locomotive and badly crushed. The case was cited as a plea for greater conservatism in such injuries. (See also ¶ 151, p. 1036.)

SURGERY OF THE BRAIN.

DR. GEORGE W. CRILE, Cleveland, Ohio, followed with a paper in which he detailed his observations on the surgery of the brain, which were based on clinical and experimental evidence.

OBSTIPATION AND ITS RADICAL TREATMENT.

DR. THOMAS C. MARTIN, Cleveland, Ohio, read a paper with this title. He said that the rectal valve is an individual anatomic organ in itself, and must now be reckoned with in studying the operations of the integral mechanism of defecation.

When the muscular elements are relaxed and the gut is either greatly dilated or else is even in lesser measure distended, the valve is passively supported by its fibrous band across the channel to resist the hurried or uncontrolled descent of the feces. The presence of the band of fibrous tissue under the free margin of the valve provides a *control* to receive or retain a bolus, or, it may be said, the several valves receive a series of boluses till a sufficient pressure is made to stimulate the complex involuntary mechanism of defecation to further propulsion of the feces or to a reversed peristalsis. The presence of feces or the involuntary movements incident to their presence signals the consciousness to co-operative voluntary expulsory effort or give warning of the necessity of voluntary resistance. The valvular arrangement of the rectum provides for the minimum expenditure of energy on the part of the voluntary forces, for the reason that the gut's contents are collected on the surface of the unyielding sacrum and steadied there to receive the pressure of the really expulsory voluntary effort. Such an arrangement of the feces further facilitates defecation for the reason that the entire contents of the rectum are not rushed on the anus at once.

If it be the function of the normal rectal valve to beneficently retard the descent of the feces, it is obviously true that it may be the especial property of the valve, in certain other than normal conditions, to maliciously obstruct the descent of the feces.

The patient is the subject of more or less chronic irregularity of defecation. He some days makes frequent partially successful attempts to evacuate the rectum, but may experience an unrequited desire for stool. The patient acquires the reprehensible physic habit. In time the periods of obstipation are interrupted by diarrhea. There is commonly an ineffectual straining at stool except for fluid feces.

The writer described a method for division of the obstructing valve and presented cases.

APPENDICITIS.

DR. JAMES T. JELKS, Hot Springs, Ark., reported a unique case of appendicitis, and made some remarks on the treatment of this affection.

APPENDICITIS FROM A MEDICAL STANDPOINT.

DR. I. N. LOVE, St. Louis, Mo., read a paper on this subject.

These papers were discussed at length, but nothing new was brought forward by the speakers.

THE MODERN SMALL-BORE PROJECTILE.

DR. AUGUSTUS SCHACHNER, Louisville, Ky., read a paper on the modern small-bore projectile.

SURGICAL TOLERANCE AND RESULTS.

DR. F. F. BRYAN, Georgetown, Ky., read this, the last paper in this section. The essayist concludes that tolerance is due: 1. To individuality of the subject. 2. To the vital resistance furnished by organs capable of performing their functions. 3. By the immediate necessity for the part by the body as a whole, for the aid of the part operated on, in carrying on life. 4. Preventing or limiting shock. 5. Limiting hemorrhage. 6. Preventing or limiting sepsis and removing the same. Results will depend on: 1, refusing operation to a hopeless class of patients; 2, painstaking care to make the procedure thorough; 3, demanding sufficient time for thorough convalescence and adaptation of the patient to the changes that have been wrought.

MEDICAL SECTION.

ENZYMES AND IMMUNITY.

DR. CHARLES T. MCCLINTOCK read a paper in which he deduced the fact that the enzymes are unorganized ferments and directly responsible for immunity.

RECENT PHYSIOCHEMIC RESEARCHES AS TO THE PHYSIOLOGIC ACTION OF LECITHIN AND OTHER PHOSPHOROUS COMPOUNDS.

DR. L. H. WARNER, Brooklyn, N. Y., read a paper on this subject. By means of numerous experiments he demonstrates that the organic phosphorous compounds are tissue builders, performing an important part in the tissue metabolism, especially in the causation of subsequent changes in the animal cells and controlling the formation of tissue. No abnormal conditions result if food contains a sufficient amount of lecithin, phosphocarnic acid and other phosphorous compounds. The most beneficial results follow their use, and they are therefore indicated in the treatment of all wasting diseases. Lecithin is always found in mother's milk, in lesser quantities in cow's and rarely ever in the artificial infants' foods, hence their inefficiency. Organic phosphates, lecithin and phospho-carnic acid are necessary in order to maintain perfect health.

These salts are derived from any of the body tissues, and especially from beef when they are to be added to any artificial foods.

SOME PHASES OF MALARIA—QUININ IN.

DR. WM. B. BURNS, Deckerville, Ark., the author of this paper, is of the opinion that malarial and typhoid fever are never found present in any one individual at the same time; furthermore, he makes the positive statement that any fever which does not yield to the proper administration of quinin is not malarial, and if typhoid has been excluded by diagnosis, the condition is due to an auto-intoxication.

He cited one case of malaria developing marked purpura hemorrhagica and hemoglobinuria which responded readily to quinin and tincture of iron perchlorid. Another case simulating pneumonia, with the hematozoon present in the blood, however, also yielded to alterative treatment and quinin.

Symptoms of abnormal renal function, such as albuminuria and hemoglobinuria, so often found in malarial cachexia, completely disappeared after the use of quinin. He has not been able to demonstrate the malarial organism in any stage of development in the mosquito, although he found an abundance of pigment, but not of the malarial variety. He administers quinin in from 3 to 5 grain doses every three hours, for from twenty-four to forty-eight hours, beginning at the commencement of the decline of the fever, as the plasmodium at this time is less capable of resistance and phagocytosis is at its best. In malarial cachexia quinin should be administered in 3 to 5 grain doses three times daily, preferably on a full stomach, in order to avoid tinnitus and nervousness. Relapses may be prevented by 10 grain doses on the fifth, sixth and seventh days, at bedtime.

DR. L. H. WARNER, Brooklyn, N. Y., remarked that Dr. Burns made a rather bold statement by saying that any fever which does not yield to quinin is not malarial. Quinin is a poison only to the full-grown germ, but does not kill the spore, consequently, if given for even thirty or forty days, it kills the germ, but the spore escapes, and it may for years lie dormant until a favorable moment arrives for it to develop and produce a new paroxysm.

The amount of chlorids in the blood constituents and in the blood plasma exceed the total amount of sulphates and chlorids. The parasite attacks the red blood-corpuscle and destroys it. Now, if there is a superabundance of chlorids, the corpuscles are not destroyed; therefore, we must use chlorin, and it will destroy not only the organism, but its spores as well. Cases coming from the hot-beds of malaria were dosed with quinin up to 40 grains at a time, and still the parasite grew, but as soon as the patients were put under treatment with quinin simplex plus chlorin, or chlorin plain, there was neither organism nor spore left.

Warner thinks that chlorin is one of the most important factors in the treatment of malaria, and it may be used alone or with quinin plain, but not the sulphate.

DR. T. B. GREENLY, Meadow Lawn, Ky., mentioned that in the "good old times" they did not give quinin until the fever was modified. They bled, purged and salivated, but gave none. In many cases the patients were far gone when the time arrived for the adminstration of the drug, finally forcing him to the conclusion that if quinin was good for fever, it was good while fever was present as well as when it was not. After regulating the bowels with rhubarb, he administered the quinin. With this method he lost only one case in a period of over six months, and that was a case of the congestive variety. In every instance he effectually combated malaria by its administration.

DR. WARNER mentioned having had a case of undoubted typho-malarial fever in which were found both the malarial organism in the quartan form, as well as the typhoid bacillus. After the patient's death the question arose, between Dr. Warner and Dr. Sternberg, as to how to make out the death-certificate, as both germs were present. Under the existing circumstances, during the last war, and also during the Civil War, there were undoubtedly cases in which there was a combination of malaria and typhoid, and the term "typho-malarial fever" would be the proper one to use, as both germs were found present.

SUCCESSFUL TREATMENT OF A CASE OF GRAVES' DISEASE AS AN AUTO-INTOXICATION.

DR. CHARLES L. MINOR, Asheville, N. C., read a paper, in which, after reviewing the various theories of the etiology of Graves' disease, and especially the thyrogenic theory, he reported two cases which he treated on the supposition that the disease is dependent on an intestinal auto-intoxication. A postive cure resulted in one of them. He bases his belief on the constant presence in excess of ptomains in the intestine, and their violent effects on the system and especially on the gastro-intestinal tract. Treatment consisted of a strictly regulated diet, in which the starches, sugars and table dainties were cut down to a minimum, or entirely eliminated, rest at first followed by carefully graded exercise, and good hygiene. Medication consisted of the lactate or albuminate of iron, antiferments at meal time, an occasional mercurial purge and intestinal lavage, to which the author has given the unique name of "liver wash." Large quantities of water are used at a temperature of 102 F., and are retained one-half hour. This increases the liver activity and all the emunctories are stimulated, thus effectually eliminating all toxins. Lavage is continued at intervals for over a year, and in one case was followed by an apparently complete restoration to health except for a slight, almost imperceptible, prominence of the thyroid. The second case, while still presenting objective symptoms, is entirely free from any subjective symptoms.

DR. GEORGE W. WEBSTER, Chicago, remarked that the treatment at present is based on an increased activity of the thyroid gland with altered secretion, which acts on an unusually nervous system. He referred to a reported case which had been treated by injections of bile as high as 100 grains a day, on the supposition that bile acts as an antiseptic, a cure resulting. At the same time he called attention to the fact that nearly 50 per cent. of these cases get well without any treatment whatever, others by surgical means, and still others by means of various medicinal agents. This does not furnish any clue, however, as to the real cause for the increase and perversion of the thyroid activity. Dr. Minor's paper establishes a primary cause in at least two cases, and must therefore be considered as an important contribution to the study of Graves' disease.

DR. HUGH T. PATRICK, Chicago, does not agree with the essayist, in that the poisons generated in the intestinal tract, and which are absorbed from it, play any part in the causation of Graves' disease. These noxious substances from the bowel are etiologic factors only in so far as is alcohol, syphilis, overexertion, etc., in any other disease, and to draw conclusions from two cases is a practice which is not to be recommended in medical research. Proper care must be given to the intestinal tract in any disease, and the numerous investigators on this subject have as yet not been able to adduce anything which might be considered as a positive proof that auto-intoxication of the intestinal tract can have any bearing as a cause of Graves' disease. After briefly referring to the various methods of treatment, Patrick mentioned one case which had been sub-

jected to every known treatment without avail, and was finally taken home in a very serious condition. All treatment was discontinued, and inside of three months the patient had perfectly recovered.

DR. MINOR, in closing, stated that he did not intend to use these two cases as an argument for all cases of Graves' disease, but intestinal auto-intoxication he believes to be one of the primary causes of the affection, and it certainly is worth while to give this condition of the bowel proper attention, as it has been almost entirely overlooked by previous investigators who lay most stress on shock, fright, dietetics, etc.

(To be continued.)

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Abstract of Proceedings of Twelfth Annual Meeting, Held at Indianapolis, Ind., Sept. 19, 20 and 21, 1899.

(Continued from Page 982.)

THIRD DAY—MORNING SESSION.

HEMORRHAGE AND THE MENOPAUSE.

DR. JOHN MILTON DUFF, Pittsburg, Pa., contributed a paper on this topic. The essayist does not believe that hemorrhage is a necessary concomitant of the menopause. When it does occur, other than as a metrorrhagia in the true sense of that term, it is in 95 per cent. of the cases significant of a pathologic condition. During the past three years he has interrogated, or has had others do it for him, 482 healthy women over 52 years of age. Of these only 39 gave a history of what could be termed a hemorrhage during the menopause, and out of this number only five gave a history of hemorrhage of any persistency. In 187 tabulated patients, between 43 and 50 years of age, suffering from uterine hemorrhage, 19 were due to pregnancy, 48 to malignant disease, 53 to fibroids, or uterine cysts, 10 to diseased endometrium, 26 to diseased appendages, while in 31 no positive diagnosis was made. In view of such statistics the author fails to see how any physician can argue as he had heard them do, that hemorrhage during the menopause is not as a rule significant of disease. Finally, "all persistent hemorrhages during the menopause should be regarded with suspicion."

DR. D. TOD GILLIAM was very glad Dr. Duff had written a paper on this subject. It is one that will do much good, provided it is distributed among the general profession. Every Fellow of the Association is fully aware of the importance of hemorrhage coming on at irregular intervals or in such quantities as would be abnormal in women, but the general practitioner is not alive to the importance of the subject, and surely the laity is very much at fault. It is a common thing for a woman to regard a case of extraordinary bleeding from the genitals with perfect complacency. She regards it as the harbinger of a change which a great many women look forward to eagerly; but, as the essayist has said, in 95 per cent. of the cases the hemorrhage is an indication of pathologic changes. Notwithstanding this large percentage, Dr. Gilliam believes that it is possible for a woman to have an abnormal discharge of blood from the uterus without a pathologic change, either systemic or local. Sometimes these changes are difficult to grasp; even with the most careful and scrutinizing examination, physicians fail to find the cause of the hemorrhage. But there is a cause back of it, and this could not be physiologic when hemorrhage came on in this way. Many cases were indicative of malignant disease, others of fibroid degeneration, and still others of a diseased condition of the endometrium itself, etc.

DR. T. J. CROFFORD, Memphis, Tenn., agreed with Dr. Gilliam that most of the cases of hemorrhage at or near the menopause were due to pathologic conditions. Two years ago the speaker prepared a paper on this subject, for the Texas State Medical Society, which was subsequently published in the transactions of that body. In it he covered essentially the same ground as did the essayist. He believes that the general practitioner is the one that is more responsible than the specialist or gynecologist for regarding these hemorrhages as indicative of the approach of the menopause, rather than of pathologic conditions taking place. The general practitioner should be better informed on these points.

DR. WALTER B. DORSETT thought it was wise to go one step further in regard to enlightening not only the general practitioner, but the medical student. Professors in medical colleges ought to dwell more particularly on the subject of symptoms in regard to cancer at or about the menopause. He thought that possibly the late Mr. Tait was more or less to blame in educating the profession in regard to the symptomatology of cancer. In his first book he made the declaration that "of all the diseases to which flesh is heir there is nothing more painful than cancer of the uterus." That has not been the experience of Dr. Dorsett. He has seen a number of cases in which hemorrhage has been the principal symptom, and that pain, except in very advanced cases of the disease, is almost always absent. This is particularly true in disease of the cervix rather than the body of the uterus.

DR. DUFF, in closing, said he felt that in bringing his paper before the Association he would be enabled to do more good than if he had read it to a local society, because the Transactions of the Association were published far and wide in the leading medical journals of the country. He said that we owe it to ourselves and to humanity to try and make an impress on the general practitioner regarding this important subject. He did not wish to be understood as attacking the general practitioner, because many of them were the noblest men in the profession, but it was a lamentable fact that very many physicians were wrong on this subject.

REPORT OF FOUR ADDITIONAL CASES OF UTERINE FIBROIDS COMPLICATING PREGNANCY.

DR. M. ROSENWASSER, Cleveland, Ohio, presented this report. To the four cases, the writer added abstracts of three previously published in the Transactions of this Association, Volume ix, pages 414 and 419. The report formed the basis of a discussion of the subject under the following headings:

1. Before delivery: *a.* In the interest of mother and child—1, non-intervention; 2, myomectomy; 3, Porro operation; 4, vaginal Cesarean section. *b.* In the interest of the mother—1, induction of abortion; 2, hysterectomy.

2. After delivery: *a.* Non-intervention. *b.* Hysterectomy, indicated by recurrent hemorrhage, and septic infection.

Non-intervention is recommended whenever, on account of its location, the tumor does not interfere with delivery, or when its moderate growth will admit of delay for viability of the child.

Myomectomy for pedunculated fibroids is a safe procedure; but the enucleation of fibroids before viability risks the life of the child, as abortions are frequent. After viability it is indicated when it is desirable and possible to preserve the uterus, or during labor when myoma of the cervix obstructs the pelvis and can not be dislodged. The Porro operation is the safest procedure after viability of the child, or at term if the tumor obstructs delivery and if the uterus must be sacrificed. Vaginal Cesarean section, as proposed by Duhrssen, has not yet been tried. Induction of abortion is considered more dangerous and less readily controllable than hysterectomy. Distress from abdominal distension or pressure, interference with vital functions, great and constant anxiety may require hysterectomy as an emergency operation. When the tumor is located in the lower segment of the uterus, or in the anterior lip of the cervix, or in the broad ligament, and encroaches on the pelvic space so as to constitute a barrier to delivery, the patient is entitled to her choice of time of intervention, whether before or after viability of the child.

After safe delivery, only distinct indications warrant any interventions. Post-partum hemorrhage and sepsis should be managed the same as though no tumor were present. Hysterectomy becomes necessary during the puerperium, when the hemorrhage can not be permanently checked, or before infection or sloughing of the myomatous uterus, or the retention of the secundines has led to general acute septicemia.

DR. JOHN M. DUFF said it was not wise to be too hasty in obstetric work, because oftentimes where delivery of the child seems impossible, early in labor, pregnancy goes on to term and the child is delivered without any trouble. He narrated the case of a woman who had a pedunculated fibroid in the pelvis, low down, with the uterus above. The woman was five months pregnant when he saw her. She was also seen by Drs. Sutton and King, who both advised operation. Dr. Duff also advised it because he could not see how the child could be delivered without Cesarean section or Porro at the end of term, and that if the tumor were removed at this time it would give her a better chance. Operation was refused. To their astonishment, one night Dr. King was called to see her when she was in labor and doing nicely; the fibroid was away up in the abdominal cavity, and the woman was delivered practically without any trouble. If operations of this kind are necessary, with a careful technic a great deal can be done without danger to the child in the removal of fibroids.

DR. T. J. CROFFORD mentioned a case that had been diagnosed, between pregnancies, as a fibroid tumor, and the woman desired an operation for its removal. He told the woman to come back to see him in a few days. In the meantime she was greatly reduced and had become too weak to have an operation. He gave remedies to build her up and get her in a condition so that when labor set in he could do a Porro operation. When labor

came on she had no difficulty, and after it she escaped infection, but still the tumor was present. Now the woman is in a good condition, but he does not know how the tumor is going to behave. She is much disappointed because she is not rid of it. He thinks that possibly if he had done an operation at the time of labor, things might have been worse for her.

DR. D. TOD GILLIAM thought the indications for operative interference were marked in a very large proportion of the cases. When a mortality of 50 per cent. resulted from non-interference, surgeons knew that it could be improved by operative interference. By early operative interference a very large proportion of the cases can be saved, but the life of the child must be considered.

DR. H. W. LONGYEAR, Detroit, Mich., stated that statistics do not always prove the thing that we desire them to do. Statistics of 50 per cent. mortality do not prove very much in his estimation, for the reason that there are a large number of cases of fibroids complicating labor, from which physicians never hear. The general practitioner does not report these cases if they turn out all right. It is only the cases that find their way into medical literature, in which the specialist is called. It is difficult to classify the cases in such a way as to lay down any rule for operation or non-interference. The thing, then, simmers itself down to individual judgment in each case.

DR. ROSENWASSER, in closing, said that he felt that the spirit in which the paper was discussed was exactly the spirit in which he had written it, that is, each case must stand on its own bottom. He called attention to the danger of cases after delivery. The dystocia is relieved at the time of labor, but the obstetrician is not by any means through with his case, and cases will occur where there may be hemorrhage, sepsis, and finally death, where the uterus has not been interfered with.

SOME OBSERVATIONS ON TEMPERATURE AFTER INTRAPERITONEAL OPERATION.

DR. LEWIS S. MCMURTRY, Louisville, Ky., read this paper. He pointed out that fever is the most constant accompaniment of inflammation, and is the first effect of the inflammatory process on the general organism to be manifested. Pyrexia is due to the presence in the blood of substances capable of causing it, and such are afforded by various systemic diseases and infective fevers. The ptomains evolved and absorbed in the course of gastro-intestinal disturbances are common causes, and chemical products of bacterial activity are the substances most familiar to the surgeon as causes of febrile action. Tissue necrosis, even without associated bacterial invasion, will beget fever; and fever often accompanies subcutaneous injuries, such as simple fractures, wherein infection is impossible except by bacteria circulating in the blood. Experimental study of fever by Kohler and others indicates that fibrin-ferment when set free in extravasated blood and absorbed through surrounding tissues will cause fever. Another substance found in the blood-clot and breaking-down tissues, known as nuclein, will have the same effect, it is claimed. A careful study of the phenomena of shock will convince one that certain nervous influences may exert a potent influence in causing fever, quite independent of any infection.

An elevation of temperature commonly follows all surgical operations of magnitude, even when a painstaking aseptic technic has been observed and primary union follows. Billroth attributes this rise of temperature to the absorption of tissues in and contiguous to the wound, which had been devitalized and broken down by the traumatism of the operation, and termed it "traumatic fever." Bergmann ascribed the pyrexia to absorption of fibrin-ferment, and suggested the term "fermentation fever." Volkmann attributes the condition to the absorption of disorganized tissues in the wound, and proposed the term "aseptic fever."

The essential and all-important point in this inquiry is as to whether there is such a post-operative fever as to justify Volkmann's term of "aseptic fever." In well-appointed hospitals, it is constantly demonstrated that immediately after abdominal section, there is a rise of temperature ranging from 99.5 to 101 F. even in cases of aseptic healing without suppuration. Clinical observation daily confirms the experimental demonstrations of Welch, that the blood is endowed with positive germicidal power capable of overcoming pyogenic bacteria, so that wounds heal primarily and aseptically despite minor degrees of infection. The efficiency and limitation of this resisting function of the blood depend more on the quantity of infecting material than anything else. The difficulty and imperfection of skin disinfection, both as to the field of operation and the surgeon's hands, are so well-known that it is apparent that a slight degree of infection obtains in all operation wounds and does not lead to suppuration nor necessarily prevent so-called aseptic primary union. Hence primary union can not be accepted as absolute proof of perfect freedom from germ infection.

The distinguishing peculiarity of all the absorption fevers, including so-called aseptic fever, is their manifestation immediately after operation. The profound infection which prevailed in pre-antiseptic days rarely manifested itself before the end of the second or beginning of the third day. The temperature of a stitch abscess does not appear until much later. The absorption fever which has been termed aseptic may quickly subside, or it may persist for many days and give much anxiety in a case wherein all other symptoms are favorable. The pulse will usually afford valued assurances of safety.

All cases of immediate fever following abdominal operations, however, are not to be attributed to absorption. In a certain proportion of cases the fever is due to the reaction that follows shock. The action of prolonged anesthesia on the kidneys, heart, stomach and lungs may have much to do with this, when every precaution is taken to prevent shock by the retention of body heat. Here again the rate and quality of the pulse will aid in excluding sepsis.

TECHNIQUE OF ABDOMINAL HYSTERECTOMY.

DR. J. HENRY CARSTENS, Detroit, Mich., read a paper with this title. The following is a résumé of the paper: The usual careful aseptic preparations are being carried out, the patient in Trendelenburg's position. After freeing adhesions, the uterus and growth are pulled out of the abdominal cavity with the aid of a cork-screw. The intestines are kept in place by abdominal towels, and clamps are placed on each broad ligament outside of the ovary. The broad ligament is cut one-quarter inch from clamps down as far as the latter extend. A cut is made across the uterus anteriorly from the point of one clamp to the other through the peritoneum, and the bladder is separated from the uterus. Another pair of clamps is then placed on the broad ligament down to the cervix, and the remainder of the broad ligament cut to the point of the clamps. The slight attachment to the vagina and anteriorly is then easily separated and the growth and uterus removed. It will be noted that there are four clamps, two containing each ovarian artery and two containing the uterine arteries. Each artery is now separately ligated with dry sterilized catgut. If the arteries of the round ligament are large, as they sometimes are, they also require a ligature. The clamps are removed and the stumps and raw surfaces carefully covered with peritoneum, by a running suture of dry sterilized catgut. If the cervix is removed, a small opening is left for a temporary gauze drain. If the cervix is left in, no drainage is used except in septic cases, when a puncture in the posterior cul-de-sac is made use of for a rubber drain. His conclusions are as follows: 1. In abdominal surgery, clamp the broad ligaments and remove the growth and uterus. 2. Ligate the four blood-vessls separately. 3. Carefully cover all raw surfaces with peritoneum. 4. In cases without tears and healthy mucous membrane, leave in the cervix. 5. In any diseased condition of the cervix and malignant growth, perform total hysterectomy.

TREATMENT OF INERTIA AND SUBINVOLUTION.

DR. CHARLES STOVER, Amsterdam, N. Y., presented a paper on this subject. The practice of discharging puerperal cases after the third day, with the direction that if anything goes wrong the doctor is to be recalled, deprives the lying-in woman of an opportunity for the detection of subinvolition. The stasis of the circulation and absence of muscular contraction leads to metritis, endometritis, retroflexion and prolapsus. Muscular contraction may be secured by the physician at all stages of labor, to overcome inertia, and during convalesence to prevent subinvolution. In the treatment of inertia during the first stage of labor, ergot is to be condemned, and rest secured by sleep. In the second stage, instrumental delivery will usually be indicated, but the slowly interrupted faradic electric current is useful, selecting the primary current when the secondary may be painful. Strychnia is to be given in doses of 1/20 or 1/40 gr., repeated in two hours, if necessary. Ergot is not advised, save in exceptional cases, and then in doses of five minims, every fifteen or thirty minutes. In the third stage, when post-partum hemorrhage may have complicated the situation, after coagula have been emptied out and secundines removed beyond doubt, the faradic current is of great value. It may be applied with one pole over the abdomen, and one at the lumbar spine. This is usually sufficient, but the intra-uterine bipolar application may accentuate its efficiency. The telescopic electrode invites sepsis. Ergot should be given hypodermically. Manual compression and massage should not cease for an instant. The treatment of subinvolution presupposes the exclusion of endometritis, fibroids, retained secundines or any pathologic state, the condition being distinguished by stasis and muscular inaction. The interrupted faradic or galvanic cur-

rent is to be used daily. Hot water douches, as outlined by Emmet, are of value. Boroglycerid tampons, daily or every other day, are likewise helpful by depleting the tissues. Ergot is still in use, particularly in sthenic and rheumatic subjects when combined with the citrate of potassium as used by Lawson Tait, in doses of one-half to one dram in a half pint of water four times daily, an hour before meals and at bedtime. Indian hemp may at times go with the ergot. Saline cathartics and an occasional cholagogue are often useful to unload the pelvic veins and quicken the portal circulation. Iron is used very early in anemic cases, and quinia, cinchona and gentian as adjuvants. Lactation is considered to be a physiologic and complementary function in promoting involution.

CHOICE OF METHOD FOR TOTAL HYSTERECTOMY AND SOME POINTS OF TECHNIQUE.

DR. B. SHERWOOD-DUNN, Boston, said that on his return from ten years' residence in France, he advocated vaginal hysterectomy without reserve, but that fuller acquaintance with the technic and results of the American method by the abdominal route, in the hands of his compatriots, has modified his opinion and practice. He says: "I first decided that cases complicated by firm adhesion were better handled through the abdomen; this left pus, cancer and simple cases, in which I include small fibroids, for the vaginal route. Later, my natural desire for conservatism persuaded me that the simple cases, if operated through the abdomen, offered the possibility of preserving the central organ and possibly one of the appendages, which I look on as of vital import to the well-being of women of younger years. There remained then only pus and cancer cases. Now I am fully satisfied that after the removal of diseased cervical tissue and the proper preparation of the uterine cavity, the removal of a cancerous uterus by the abdominal opening offers better promise of success, as it affords the opportunity to examine and remove any of the affected glands, as well as any suspected portion of the broad ligament," leaving only pus cases, which he still believes are best handled through the vagina chiefly because of superior drainage. He made an important point with regard to vaginal hysterectomy, in that the importance of the after-treatment of these cases has been generally overlooked and misunderstood by American surgeons, and as regards the ultimate recovery and favorable results, this is as important as is the technic of the operation itself. The reason for this oversight is easily explained. The clinics are open to all without question, in Paris, but a visitor, to follow the cases in the wards, and daily see the dressings, must obtain the consent of the hospital administration, which is difficult, and is seldom accorded." He has seen a host of his American colleagues present at the operations in his hospital service in Paris, but rarely one that had sufficient interest to secure the entrance into the hospital wards, go daily at 7:30 a.m. and go through the day's routine. They all became familiar with the technic of the operation, but very few learned the details of the after-dressing of the cases. No case, in his opinion, can be properly douched and dressed on a bed-pan in bed. The patient should each time be placed on the operating-table in the operating-room, or dressing-room, if one be provided, and with the advantage of an open field brought into view by retractors in the hands of an assistant, with a good light and perfect asepsis, thoroughly and carefully douched with permanganate, hydrogen dioxid or other antiseptic, and re-dressed with drainage of iodoform gauze, and the vagina carefully but not too tightly packed with the same material. "It will readily be seen that this is a laborious and lengthy operation, which, so far as I am concerned, can not be entrusted to the hands of a nurse, no matter how competent, and must be confessed, has had great influence in my relegating the operation to the saving of life only."

He compared the abdominal operations by Richelot, Le Bec, Doyen and Martin with the American method, much to the favor of the last named, and emphasized the advantages of the preservation of the cervix by giving five reasons in its favor. 1. Prolonging of operation because of hemorrhage from the lateral and posterion vaginal arteries and closing of vaginal opening. 2. Danger to the uterers. 3. In some women the os and cervix is the seat of sexual pleasure. 4. The cervix forms an integral part of the pelvic floor. 5. The opening into the vagina increases the chances of infection.

INTRAPELVIC ADHESIONS.

DR. WALTER B. CHASE, Brooklyn, N. Y., contributed this paper. The author stated that in standard text-books on gynecology very little space has been devoted to the distinctive topic of intrapelvic adhesions, and it is surprising to find how little notice on the whole it has received from writers on gynecology and abdominal surgery. It would seem that their importance would entitle them to more study. Any surgeon of experience can recall not a few cases in which adhesions were the principal factor of trouble, often only relieved on opening the pelvic cavity. The symptoms sometimes are apparently out of all proportion to the gravity of the conditions existing. Other things being equal, diagnoses are more easily made in the female than in the male, and in those having thin and non-rigid abdominal walls. Localized abdominal rigidity has a special significance in appendicitis, ovaritis, and other acute inflammations affecting the pelvic viscera.

The character of the adhesions likely to be formed will vary according to the variety of inflammation producing them. Their plasticity and extent will be dependent on the dyscrasia of the patient, and the proximity of the period of their formation. Recent adhesions lack the strength and resistance of older ones, and the friability of those formed in the presence of septic, tubercular, and malignant conditions is marked.

In making the diagnosis, use anesthesia if necessary, determine the mobility, in every direction, of the pelvic contents, as far as is consistent with conservative manipulation, and examine the patient by percussion and manipulation in the horizontal, upright, knee-chest, and Trendelenburg postures. Too forcible handling of the parts must be avoided as dangerous, and on the contrary careless or superficial examinations will fail to differentiate easily determinable conditions. A careful logical study of the antecedent history affords valuable information. From what previous inflammatory conditions has the patient suffered? What sequelæ are due to pregnancy, sepsis, tuberculosis, and syphilis? And has traumatism been a factor? If still in doubt, resort to abdominal or vaginal section may be needful and conservative.

The deleterious influences arising from the presence of intrapelvic adhesions are numerous and complex, being partly functional and partly mechanical. Constipation, due to narrowing of the lumen of the gut, angulation, and impaired peristalsis is far-reaching in its effects. Nervous disturbances due to ovarian adhesions, and cystic irritability from bladder adhesions are more or less frequent.

The adhesions may be limited to a single band, or be so extensive as to amalgamate all the pelvic structures. What shall be done with them? Sometimes the surgeon will let them alone, and again their vicious influences will be the signal for attack surgically. Where their presence is general, it is obvious their obliteration is outside the limit of conservative surgery, yet in cases, not a few, the removing of tension at some one point will afford measurable relief. The adhesions most difficult to manage cover in old abscesses, hold in position intraligamentous growths, or connect living placenta and intestines, following the rupture of ectopic gestation.

To prevent the development of adhesions, one must, naturally, prevent the occurrence of their antecedent septic and inflammatory process. To retard their development two drugs have been long known, potassium iodid and mercurials, and to them must be added another, gold and sodium chlorid. The Brandt method of pelvic massage claims recognition, and is undoubtedly useful. In the surgical treatment of adhesions *per se* the danger is two-fold—the difficulty of controlling the hemorrhage, and the liability of new adhesions forming from the exposed raw surface remaining. To control the hemorrhage, tying or torsion, or, when this is impossible, pressure and the application of hot water, or occasionally permanent pressure by gauze packing is indicated. We have encouragement for the future in the use of Dr. Skene's electrohemostatic method. To prevent the formation of new adhesions, leave as little raw surface as possible, use absorbable ligatures, and wash, with normal salt solution, what raw surface can not be covered.

The following were elected as officers for the ensuing year: President, Rufus B. Hall, Cincinnati, Ohio; first vice-president, L. H. Dunning, Indianapolis, Ind.; second vice-president, T. J. Crofford, Memphis, Tenn.; secretary, William Warren Potter, Buffalo, N. Y., and treasurer, X. O. Werder, Pittsburg, Pa. The next place of meeting will be Louisville, Ky., 1900.

ATTORNEY-GENERAL OREN of Michigan says: "The opinion given by me regarding Christian Scientists had no reference to the Chandler bill. It referred to section 4453, compiled laws of 1897, and was to the effect that 'Christian Science' healers come under the terms of that section as persons acting as physicians who are required to report the extent of dangerous and communicable diseases under certain penalties. I have given no opinion as to the status of 'Christian Scientists' under the new medical act."

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SATURDAY, OCTOBER 29, 1899.

MODERN CYTOLOGY.

Cytology is the most important, as well as the most fascinating, department of physiology and pathology. Though it is doubtful if we shall ever arrive at a perfect solution of the structure and functions of the cell, since all our means of investigation change its nature and put to flight that subtle something within its substance which we call *vitality*, our labors have nevertheless been sufficiently rewarded by revelations so startling as to stimulate us to further investigations.

The discovery of the cell as the ultimate unit of organic structure and the confirmation of Virchow's famous dictum, "*omnis cellula e cellula*," closed two immense gaps in the path of scientific knowledge. Though some doubt has been cast on the importance of the cell form as a factor in organic life, its constant presence, as well as its evolution from pre-existing cells, has never been disputed.

In regard to the minute structure of the cell, W. B. Hardy[1] says, in a most thoughtful and exhaustive article, that at present four views are held. The first regards the protoplasm of the cell as being made up of a reticulum and a homogeneous fluid substance. The second looks on it as consisting of a more or less solid material, with vacuoles inclosing a fluid. The third considers it as a homogeneous jelly with granules. And the fourth believes it to be entirely homogeneous. It is an extraordinary fact that cells of such diverse functions should nevertheless not only be developed from the same cell, but even be all constituted alike and of the same substance. It is this fact that has led some to look on the cell as merely an adventiticus arrangement of the still more ultimate, universal basis of organic life, the protoplasm. At all events the first of the views just enumerated is the one most generally accepted. The vacuoles, fluidity, etc., of the other views are interpreted by most histologists as mere sequelæ of cellular activity and, therefore, not of essential importance in the cell structure. It is still a debatable question whether the reticulum or the intervening homogeneous substance is to be regarded as the real functionating constituent of the cell. As everybody knows, the reticulum or spongioplasm manifests more marked affinity for certain stains than does the enchylema or hyaloplasm. Especially obvious is this in the nucleus, where the network as well as the nucleolus itself is composed of *chromatin*, while the nuclear membrane and nuclear sap are referred to as the *achromatic* substance. The action of this chromatin substance, both in health and disease, is at the present time riveting the attention of microscopists. The phenomena it undergoes are remarkable, and recent observations would seem to show that in its activities are to be found the explanation of the functions of the normal and the vagaries of the diseased cell. Under given conditions it vanishes and reappears, changes in quantity and shape and even modifies its location within the cell to a remarkable degree and with a surprising uniformity. Some have thought that it represented the reserve nutriment of the cell, while others have imagined that it was itself the functionating element. It is without doubt the most important constituent of the cell. So constant and regular are its changes under similar conditions, that some histologists have even gone so far as to claim they could almost diagnose a disease by the post-mortem appearance of the chromatin. Chromatolysis, as it is technically called, has come to be a significant feature in pathology and hereafter no pathologic report will be considered complete without an account of the degree and character of the changes manifested by the chromatin substance of the cells.

James Ewing, M. D., of Columbia University, has published an elaborate study of ganglion cells,[2] that is most instructive and suggestive. Illustrations and a complete bibliography add to the value of the paper, which, on account of its completeness, is deserving of a careful reading.

The chromatic bodies of the ganglion cells had been seen by Fleming as early as 1882, and simultaneously by Bend and Nissl, in 1885. It was the superior technical method of the latter investigator, however, that enabled him to propose a new and scientific classification of cells, based on the character of their chromatic substances. He divided them into two classes. The small ganglion cells, *karyochromes*, were especially distinguished by their nuclei in connection with basic staining elements. The larger cells, *somatochromes*, exhibited their distinguishing traits in connection with the chro-

[1] Journal of Physiology, 1895–1899.

[2] Archives of Neurology and Psychopathology, 1898, i, 3. Issued February, 1899.

matic substance in the body of the cell. Subclassifications of these two varieties were then made in accordance with the appearance and arrangement of the chromatin. Objection has been offered to Nissl's classification by Benda, Colucci, Lenhossèk and others. Lenhossèk voices the chief objection when he intimates that the arrangement of the chromatic substance is purely an empirical fact without known significance. Though still a matter of dispute in regard to certain details, the importance of the chromatic substance is universally acknowledged. Some of Dr. Ewing's conclusions, of which we can not give details, are remarkable for their suggestiveness; as for example, the assertion[3] that "the lesions found in cases of thrombosis of the basilar artery and various forms of cerebral hemorrhage were equaled in intensity only in cases of alcoholism, sunstroke, tetanus, etc., but not in cases of severe general bacterial toxemia. The conclusion seems justified, therefore, that the chromatic substance of nerve-cells is more susceptible to the effects of disordered circulation than to the action of most bacterial toxins." Can it be possible that in a short time we will be able to diagnose diseases and even determine their etiology by the amount and character of the chromatolysis that has occurred within the cells? The thought is a startling one, and in addition to holding out a brilliant hope for the future, indicates the immense advances that science is making toward the explanation of disease.

GEOGRAPHIC AND STATISTIC METHODS AS AUXILLARY FACTORS IN THE STUDY OF CARCINOMA.

Is carcinoma increasing in frequency? This question is now a subject of discussion. Roswell Park of Buffalo, Finkelnburg of Germany, and others have brought forward certain statistics which go to show that the mortality-rate for carcinoma is increasing. There is some doubt, however, as to the reliability of the figures available for this kind of study. Evidence has also been brought forward to show an increased frequency of the so-called endemic occurrence of carcinoma. Behla, Behrens, Pfeiffer, Arnaudet, Schuchardt and others have narrated apparently striking examples of small cancer centers in villages, parts and streets of cities and in single houses. According to Finkelnburg, there occurs in Prussia as a whole, 1 death from carcinoma in every 10 deaths; in Corneilles, in Normandy, Arnaudet and others have demonstrated the abnormally high relation of 1 carcinoma death to 7 from other causes: in a well circumscribed part of Luekan Behla shows the proportion to be 1 to 10. This will indicate what is meant by an endemic of carcinoma. Naturally such abnormally high percentages suggest at once the influence of special etiologic conditions which are more easily studied in the small, settled and relatively simple communities in which carcinoma has been found to be so frequent. The question might well be raised whether this abnormally frequent occurrence of carcinoma in certain places, streets and houses may not prove to be purely accidental. The vagaries of chance happenings have played queer pranks in pathology as well as in other science. The influence of accident can not be wholly excluded when it comes to explain what is ordinarily meant by cancer streets and houses. In the case of the so-called endemics in small villages with a stationary population, the conditions are apparently a little too complicated to be satisfactorily explained on the score of fortuitous concourse. Hence the endemic frequency of carcinoma under such conditions merits careful study from all points of view. A good beginning has already been made by Behla[1]. The value of collective investigations of carcinoma with the object of bringing out all kinds of reliable data, peculiar local conditions, etc., is quite apparent. So far this country is the only one in which there has been established a state laboratory for the exclusive investigation of carcinoma and tumors in general. The great state of New York supports such a laboratory in Buffalo, under the directorship of Roswell Park. We need many such institutions scattered over the United States, as well as in foreign countries so that the great and unsolved problem of the malignant tumors may be properly attacked. Here is a rich field for private munificence. We are in need of extended study of the nature and frequency of malignant tumors in all kinds of animals and of the parasitic diseases of plants and trees which give rise to the tumor-like growths, or xylomas so that correct conclusions may be formed in regard to the relation of the latter, if any exists, to animal tumors. The fact that certain varieties of the organisms currently known as blastomycetes are able to produce cell proliferations which very closely resemble true tumors, so closely that it is not unlikely that some forms of productive blastomycosis are sometimes mistaken for true tumors, is certainly very suggestive and the pathogenic and botanic relations of these organisms should be fully elucidated. At present their botanic position is not very satisfactorily established; many mycologists and pathologists are inclined to look on them as parasitic adaptation forms of more highly developed or complex vegetable organisms than would appear from their relatively simple structure in the lesions they produce and on artificial culture-media. The various subsidiary but important problems of the kind indicated, as well as many others, can be systematically studied to best advantage in a properly arranged and fully equipped special laboratory in which the work can be intelligently differentiated at the same time as it is wisely co-ordinated and directed toward a definite end.

From his study of the local conditions in Luekan and other apparent carcinoma centers, Behla finds that the facts available point to carcinoma being a parasitic disease whose germs, in certain localities at any rate, are

[3] Ibid., p. 376.

[1] Ztft. f. Hyg. u. Infectionskr., 1899, xxxii, 123.

conveyed by water contaminated with vegetable matter of all kinds and richly loaded with aquatic plants and all sorts of minute organisms. Behla states that in Luckan there occur numerous parasitic diseases of the ordinary vegetables grown in the kitchen gardens, and by feeding rabbits with leaves covered with parasitic proliferations, he was able to produce a disease which greatly resembled coccidiosis. The fact that the proportion of deaths from carcinoma is abnormally high in certain localities, and that in certain years sudden exacerbations occur, are best explainable, according to Behla, on the basis of the theory that parasites are at work, which in such regions and periods find more favorable conditions for their growth. So far the geographic and statistic studies of carcinoma would appear to rather favor the theory of its parasitic origin; we are led to this conclusion by the resemblance of certain relations and by reasoning from inferences, but not by actual proof and demonstration.

TUBERCULOSIS IN CHILDREN.

The route of infection by tubercle in children is an important matter, but there are serious difficulties in the way of its determination. Children, or more especially infants, do not expectorate, and the diagnosis of tubercle in them is therefore often uncertain. The beginnings of tuberculosis are consequently not often observed. It is only when the disease is finally developed that its clinical history is a matter of notice and record. In a recent lecture, Dr. George F. Still[1] considers these facts and offers some interesting statistics, based, not on clinical observation, but on post-mortem findings, for the solution of this problem. In 769 autopsies of children, tubercle was found in 269, or 35.2 per cent. Tuberculosis was the actual cause of deaths in 252, or 32.8 per cent. From these statistics, therefore, it can be roughly estimated that about one-third of the deaths in childhood are due to tuberculosis in one form or other. While children are thus shown to be specially subject to this disease, they are not equally so at all ages, for Still shows that up to the age of 4 the percentage is as high as 71, and between 4 and 8 is still 22.5; after 8 it diminishes to 6.5. Moreover, the greater part of the tuberculosis under the age of 4—43.4 of the 71 per cent.—occurred in children under 2 years of age. This great frequency of tuberculosis in infancy has been used as an argument in favor of the idea of infection through milk, the primary lesion being in the digestive tract. It is true, Still says, that intestinal tuberculosis is exceedingly common in children; it existed in 52 per cent. of his cases examined, but so also is that of the brain and meninges—48 per cent.—and that of the lungs is far more frequent—78 per cent.

Tuberculosis has so great a tendency to generalize itself in children that the question of the primary infection is not to be settled by the mere frequency of the lesions. The fact that children swallow their sputa is to be kept in mind. There is no question as to its infectiousness, while that of ingested milk in the human species has not been absolutely demonstrated. He finds that his statistics show that in 25 cases taken consecutively, of children under 3 years, who did not expectorate, intestinal lesions were found in 19, while in a similar series, aged between 3 and 12, they were found in only 10. It would thus appear that autoinfection by the sputa in infants is a matter of serious importance.

It is in the condition of the lymphatics, however, that, according to Still, we have the best index of the presence and duration of tubercle in children. The careful study of these, in the mediastinum, mesentery, and elsewhere, their degree of caseation, dried up or calcified appearance, will, he claims, give us the best estimate of the duration of the tubercular process in the different regions. Applying this test to the 269 cases, he found evidence of primary infection in the lung in 138, and in 63 in the intestine, while in 46 the original lesion could not be satisfactorily ascertained. From these figures it would appear that in children the usual channel of infection is rather by way of the lungs, by inhalation, than by the intestinal tract. To make the case stronger, he finds that in the 89 autopsies of tuberculous children under 3 years of age, 63 appeared to have been originally infected through the lung, and 26 through the intestine, while in 91 cases between 3 and 12, the pulmonary infection was apparently prior in 55, and in that of the intestines in 36. The conclusion deduced from these figures, accepting the facts and methods, is that infection from food is less to be dreaded than that from infected air.

Still's paper, following as it does those of Bovaird and Northrop in this country, which gave even more striking figures, is significant, and the evidence and arguments they contain are not easily combated. The view of a primary infection of the lungs through infected chyle, as advanced in a recent paper, is an assumption that is hardly likely to be generally accepted, except as a curious theory; lung infection is probably by way of inspired air in the majority of cases, and while intestinal infection may easily be secondary to a primary pulmonary one, the converse is not so readily assumed or explained. While tuberculous milk is probably a real danger, it is more than probable that the peril in this direction is liable to be over estimated, it may be at the expense of the needed attention to the much greater danger of infection through the air passages.

SYPHILIS AND LEPROSY.

While the difference between leprosy and syphilis is now well established, the fact that they have in the past been confounded by some writers and the rarity of a coincidence of the two diseases in the same person makes the report of a case of primary specific infection in a leper of some interest. Such a case is recently reported by a Russian physician, Dr. Messaroche, in *Wratch*, and

[1] Clinical Jour., London, September 27.

is noticed editorially in the *Medical Press and Circular*. The patient, a man, aged 47, presented himself "in the condylomatous stage of syphilis," but also had two small brown patches on the abdomen, and a hard swelling of the left testicle with edema of the scrotum of some standing. Under specific treatment the luetic manifestations disappeared, but a further crop of anesthetic brown patches on the abdomen made their appearance. The subsequent history of the case confirmed the diagnosis of leprosy, and its interest is in the fact that the disease appeared to be unaffected by the concurrent syphilis, unless we are to infer that an apparent aggravation under specific treatment was due to the disappearance of the latter. This was not apparently suggested or suspected by the reporter of the case, and may perhaps be considered as unlikely.

PHOTOTHERAPY.

The bactericidal action of light is without doubt one of our greatest safe-guards, though it has hardly been duly appreciated. Direct sunlight, it is estimated, kills the tubercle bacillus in two or three hours or even less, and other pathogenic species are similarly vulnerable to its rays. Acting on this knowledge, Finsen, a Danish physician whose method is described in the *British Medical Journal* of September 9, has harnessed the sun's rays, so to speak, for therapeutic purposes especially in the treatment of the tuberculous skin lesions of lupus. He has found that the chemical rays alone are effective for this purpose, and the heat rays of the red end of the spectrum have necessarily to be excluded in the concentrated sunlight he employs. His method here suggests that perhaps the movers of the blue glass craze of the seventies were wiser than they then knew, though their diffused and diluted sunlight could not be effective to any extent. He passes his concentrated sunlight through a condensing lens filled with a blue solution, thus cutting off the red rays and interfering but little with the passage of the blue and violet ones. This line of phototherapy is Finsen's special province, for several years ago he reported therapeutic effects from the red rays, especially in certain eruptive disorders like smallpox. Little, however, has been heard from that recently, but the present work on lupus seems to promise to be a real advance in the treatment of the disease—that is—if we can trust the accounts and the illustrations of cases cured, in the communication of Dr. Bie. It may be, however, that he is a little too enthusiastic an advocate of his master's method.

THE OVERSUPPLY OF MINISTERS AND DOCTORS.

The question: "Are there too many ministers?" was recently discussed in one of our metropolitan dailies. Views of ministers of various denominations were given, and it seemed to be the opinion that the answer should be in the affirmative. There seemed to be no difference of opinion, either, as to the cause of the oversupply—the large number of theological seminaries, coupled with the ease with which they can be entered and the suicidal policy of encouraging young men to enter them. Altogether the reading of the discussion impresses one with the idea that the members of our sister profession are no better off than are the members of our own. On the theory that misery loves company this may give an empty consolation to some. While no one doubts that the medical profession is overdone in this country, the oversupply does not work quite so disastrously to the physician as it does to the minister of the gospel. The latter must find an opening in the form of an organized church, the former can go anywhere, whether there is an opening or not, and hang out his "shingle." He need not worry about the probable fact that there are already too many doctors, in the place he selects, or give a second, if he does a first, thought to the fact that every patient he gets makes one less for his fellow practitioner. All that he realizes is that existence is a struggle, and that he is in the struggle. It is hardly necessary to say to our friends of the "cloth," "here too," when they lay their oversupply to too many colleges. The curse of too many colleges is much more evident in our profession than in theirs. What are we going to do about it is the important question.

"CHRISTIAN SCIENCE" AND MEDICAL PRACTITIONERS.

We regret to see that a medical man in the correspondence columns of the *Medical Record* takes up the side of "Christian Science" and is willing to subscribe his name to the arguments of its votaries. It is a fact sufficiently self-evident to anyone that an individual has the legal right to change doctors and to put himself and those for whom he is responsible under the charge of anyone in whom he has confidence, that is, provided the practitioner is one legally qualified to act in the capacity of a healer. If the law recognized voodooism, it would be his privilege to call in the African conjuror. It is an entirely different case when the morality of the procedure enters into the question. It should be evident to everyone that the right to subject a helpless infant suffering, let us say, from a disease that may be amenable to suggestive therapeutics, to exclusive treatment by a faith healer or "Christian Scientist" is properly subject to question, and when the disorder is one that is clearly only curable by surgery, such a procedure is so obviously criminal that it stultifies the law permitting it. If "Christian Science," Dowieism, and such fads were comparatively harmless delusions affecting the welfare only of their assumably responsible adherents, we might consider these as so joined to their idols that it would be best to let them alone. But they are more than this, they are Molochs to infants, and pestilential perils to communities in spreading contagious disease. It is therefore the duty of the medical profession to do what it can to enlighten the public in regard to them, and we are tempted to doubt the presence of normal mental qualifications in an educated physician who can publicly defend their existence. His good judgment is certainly impaired, to say the least.

ST. LUKE'S HOSPITAL AGAIN.

We are receiving letters almost daily asking us to "show up" the concern which calls itself St. Luke's Hospital. As we enlightened our readers in regard to this scheme for swindling physicians in the JOURNAL some time ago (see JOURNAL, June 24, p. 1465) it seems hardly necessary to refer to it again. But recently these people have been sending out, with their

other inveigling literature, a facsimile copy of a letter which they adroitly obtained from Dr. N. Senn, about a year ago. As many of our correspondents have asked whether it were really true that Dr. Senn was connected with the concern, we wrote him suggesting that he could hardly afford to let it go without a public denial. In response he sends us the following for publication:

CHICAGO, Oct. 12, 1899.

To the Editor:—I have for a long time been annoyed by numerous letters inquiring about my professional relations with St. Luke's Hospital, Niles, Mich. The facts are these: Soon after my return from the war, a year ago, I received a letter from the above institution informing me that I had been appointed consulting surgeon, and that a certificate to this effect had been sent by express, charges prepaid. I had never heard of the Hospital, but its name indicated a respectable institution. I accepted the appointment, but soon ascertained the true status of the concern and at once returned the certificate, accompanied by a letter informing the president that I absolutely objected to have further use made of my name in any connection whatever with the St. Luke's Hospital. I have repeated the same request twice since, but apparently without effect. Very respectfully,

N. SENN, M.D.

Lately the imitation typewritten letter, which no doubt the duped receiver thinks is a letter gotten up for him alone, has on its reverse side a list of the names of those who already belong to the "staff," and who reside in the state to which the letter is sent. The lists which we have received are those of Kansas and Michigan. Other states we hope will come in soon, for we are anxious to see them. They are very instructive and interesting, and worthy of deep study. We have no doubt that on the office walls of the physicians whose names are recorded on these lists are hung the "beautiful work of art" which cost them $10, and if they have not already done so we would urge that they hang above it the appropriate motto: "What Fools We Mortals Be." The list from Kansas contains fifty-four names, and the physician sending it writes on the margin, "only one of these belongs to any society." We were curious to know whether any of them are readers of the JOURNAL, but not one of the names could be found, either among the subscribers or among the members. The list from Michigan—the state in which the concern is located—has only seventy-five names. This does not speak well for the "home state." But among these we found—we are sorry to say it—three of our subscribers. Thus far we have learned two things: one is that the "hospital" is making a nice pile of money out of physicians; the other, that the readers of the JOURNAL are not the kind to be taken in by such bait.

MORBUS CERULEUS.

It is rather remarkable that so many of the profession continue to associate this term with congenital heart disease, although the expression itself merely refers to that peculiar lividity of the skin that occasionally supervenes some little time after birth. Theoretically considered, it might be dependent on anything which would interfere with the proper oxygenation of the blood. Thus, general venous stasis, from whatever cause, or a diminished amount of normally-working lung tissue, would act as causal factors just as readily as would any interference with the bringing of venous blood from the right heart, as for instance narrowing of or obstruction in the pulmonary artery. Indeed, Smith regarded cyanosis as a blood disease due to lack of oxygenation or an excess of carbonic acid, and as such ranked it among blood diseases proper, as leukemia. When due, however, to cardiac lesions, the most prominent cause has not been, as text-books would lead to believe, patency of the foramen ovale, but as shown by the statistics of J. L. Smith, Stillé, Morrison and others, an obstructed, rudimentary, or congenitally absent pulmonary artery. Smith's statistics are particularly interesting in that, out of the 162 cases collected, he was unable to assign all to some one of fourteen distinct divisions, the most important of which, including those already cited, were, transposition of the aorta and pulmonary arteries, one auricle and one ventricle, and a condition in which the right ventricle was divided by an extra septum. Many cases of morbus ceruleus of cardiac origin are accompanied by bruits of no constant origin or transmission, and many, if not all, of these are believed to be due, antemortem, to patency of the foramen ovale. Why, on this little opening, which is said to usually close within ten days after birth, has been thrown the whole burden of congenital heart disease, is a mystery; certainly late autopsy findings are in no way to blame. Possibly, as is the case with so many of our text-book tenets, the statement was once made by a man of prominence and has since been copied without sufficient, or indeed any, investigation. That some of these cases of congenital cyanosis are not due to congenital disease of the heart, is evidenced that by treatment—often in spite of treatment—the lividity disappears never to return. These are cases without cardiac murmur. On the other hand, many malformations of the heart and great vessels have been found post-mortem in which no cyanosis existed during life. The writer has himself seen several such. A condition so *outre* as this disease, and one of so much general interest, is certainly at present in dire confusion, a state from which the pathologists and clinicians should together endeavor to raise it.

DECISION AGAINST DIPLOMA MILL.

We direct the attention of our readers to a decision of the supreme court of Illinois in regard to the Independent Medical College, printed in our "miscellany" columns this week. This fraudulent concern is still, we understand, sending out its diplomas, and its head claims that this decision will not affect its future conduct. He will probably find himself less at liberty than he pretends, as it will be noticed the decision of the supreme court states that the facts warrant revocation of the charter and also a fine. The present laws of Illinois also make it possible to put a speedy end to future concerns of this kind, and it will be interesting to observe whether Armstrong & Co. will venture to keep up their illicit diploma-selling under a changed name. It would appear that it might be easy to exhaust their resources in time by legal proceedings. Too much praise can not be given the efficient secretary of the State Board of Health, and the attorney-general, Mr. Barnes, for their indefatigable efforts to do away with this diploma mill, and to the Governor, through whose co-operation results have only been capable of accomplishment. This decision ought to be welcome news to the medical profession of Kansas, Nevada, Oklahoma, Texas and other

states, which have been flooded by graduates of the Illinois Health University, and the Independent Medical College.

Medical News.

A NEW hospital—The Mary Washington—was recently dedicated at Fredericsburg, Va.

DR. RUDOLPH MATAS, New Orleans, La., is on a vacation trip in northern and eastern cities.

DR. BURTON K. CHANCE has been appointed assistant surgeon, and Dr. Walter Blair Weidler resident surgeon, to the Will's Eye Hospital of Philadelphia.

THE NEW hospital for infectious diseases, being erected at Moscow, at the expense of W. E. Morosow, will have 250 beds and will cost 500,000 roubles.

CARDINAL GIBBONS of Baltimore has made a donation of $100 to the rebuilding fund of St. Vincent's De Paul Hospital of Norfolk, Va., recently destroyed by fire.

PRESIDENT D. C. GILMAN, of the Johns Hopkins University, gave a reception on the 13th to the members of the medical school who recently returned from the Philippines.

THE PROPOSED quarantine against consumption in California will hardly be carried out, as it is said that only one member of the Board of Health, its proposer, favors it.

DR. C. URBAN SMITH has been elected professor of practice of medicine in the new Maryland Medical College, Baltimore. This is a three-year school, organized two years ago.

DR. WALTER L. DEEMER, Philadelphia, has been appointed assistant-surgeon of the National Guards of Pennsylvania, and has been assigned to the Third Regiment Infantry with the rank of first lieutenant.

A RUSSIAN exchange announces that a society has been organized in Moscow to erect and maintain an asylum for aged or incurably diseased women throughout the country who have had a medical training.

THE PARIS *Gazette des Hopitaux* states that there have been 1500 cases of typhoid fever in Paris between January and July 15, and 650 since. All have been on the line of the La Vanne water-supply.

DR. P. S. KRAMER, late brigade surgeon U. S. V., stationed at Santiago, Cuba, has returned to Cincinnati, Ohio, to take up his chair of pathology in the Cincinnati College of Medicine and Surgery.

THE SUM of $10,000 has been bequeathed to the trustees of the estate of Mary McCrea, who recently died in Philadelphia, the interest of which is to be applied for the relief of the charitable and for the care and protection of children.

THE SUM of $30,000 has been left to Lafayette College, Easton, Pa., by Mary Effinger Appley, to remain in trust for the establishment of the Mary E. Shapley Free Scholarship to educate worthy young men of Pennsylvania for the ministry and medical profession.

THE STEAMER *Armslor*, from Baltimore, arrived in Philadelphia on the 9th, having on board yellow fever. She was detained at Reedy Island, the crew placed in quarantine, and a new one placed aboard her. The old crew will be held in quarantine for a period of six days.

THE STEAMER *Arogonia*, which arrived in Philadelphia on October 11, having on board 150 immigrants from Antwerp, was found to have among its crew two passengers afflicted with typhus fever. Both were removed to the Municipal Hospital. One of the patients has since died.

A STEAMER from Bombay has arrived at Plymouth, Eng., with a patient suffering from bubonic plague, which developed during the voyage from Marseilles. The patient has been isolated and the other passengers are reported to be in good health.

THE ADMINISTRATION building of the Loomis Sanitarium for Consumptives, near Liberty, N. Y., was entirely destroyed by fire October 14; loss, $100,000. None of the inmates was injured. The burned building, which was of stone, was the gift of J. Pierpont Morgan, and will be rebuilt.

M. SCHEURER-KESTNER, the distinguished advocate of the innocence of Dreyfus, who died last month, besides his political prominence had high claims to distinction as a chemist. During the 60's he was an active member of the Paris Chemical Society, and was the author of a work on organic chemistry.

THERE IS a new departure in courses at the University of the City of New York, known as the Preparatory Medical Group of the College of Arts and Pure Science. The student who pursues the course will have had at the end of the senior year, 400 hours each of biology, chemistry, and 200 of physics.

A COMMITTEE representing the fifty district physicians of Philadelphia recently appeared before a meeting of the Board of Charities and Correction to argue for an increase in salaries, from $20 to $60 a month. One member of the committee stated that the average pay for each visit was not over 10 cents.

DURING the month just passed the inmates of the Philadelphia Hospital (Blockley) numbered 3675, of which number 1371 were insane, 953 in the hospital, 1127 in the out wards, and 224 children were on trial in homes. Dr. G. E. Pfahler was appointed assistant physician, vice Dr. S. F. Gilpin resigned.

DR. H. C. EYMAN, for many years superintendent of the State Hospital for Insane, Cleveland, Ohio, has been elected superintendent of the state hospital at Massillon, to succeed Dr. A. B. Richardson, who has been elected superintendent of the National Hospital for Insane, Washington, D. C., as noted last week.

DR. WILLIAM H. HOWELL, professor of physiology, has been made dean of the Johns Hopkins Medical School, in place of Professor Osler, resigned. Dr. Henry M. Hurd, professor of psychology, continues to hold the position of superintendent of the Johns Hopkins Hospital, reports to the contrary being incorrect.

AN EXPLOSION of gas and fire under the sidewalk and street in Paris, September 15, spread into the basement of the adjoining building, which happened to be the new wing of the Faculté de Médicine, containing the priceless treasures of the library, with the apartments of the dean and secretary on the second floor. As the fire occurred before dark it was kept under control and finally extinguished.

AS A result of the competitive examination recently held at the Central Dispensary and Emergency Hospital, Washington, D. C., to fill the vacancy caused by the expiration of the term of Dr. J. Lee Adams, Jr., Dr. Chas. G. Smith of the University of Virginia was appointed second assistant resident physician. Dr. Wm. E. Whitson was promoted to be resident and Dr. W. C. Williams, assistant resident physician.

T. B. PANDIAN, Madras, India, is now in Philadelphia for the purpose of raising sufficient money to provide for the purification of the drinking water used by the class of citizens known as "pariahs," in India, who are not permitted to procure water from the springs or rivers used by others. It is said that much of their drinking water is derived from puddles and stagnant pools.

THE UNIVERSITY and Bellevue Hospital Medical College, New York City, opened October 1. Every student enrolled during this year will be a four-years' student.—The Medical Department of Grant University, Chattanooga, Tenn., opened October 11, the matriculations numbering about 150.—The opening of the Medical Department of Tulane University of Louisinana has been postponed to November 2, on account of the quarantine against New Orleans.

A COMPLETE hospital has been provided on the grounds of the National Export Exposition, Philadelphia. The apartments are equipped with stretchers, a bicycle ambulance, and a complete dispensary. Three surgeons and a trained nurse are in constant attendance. Since it has been opened, nearly one hundred persons have been treated. The hospital is under the supervision of Dr. T. Hollingsworth Andrews, chief surgeon of the Philadelphia Emergency Corps, and Assistant Chief Surgeon Green R. Hulshizer.

A UNIQUE trial has just ended at Paterson, N. J., in which a dry goods clerk obtained a verdict of $1000 against the Edison Illuminating Co. for injuries received from an electric shock caused by a live wire during a severe storm. The plaintiff claimed that while carrying his umbrella, which had a steel handle, it came in contact with the end of the wire and he received a shock sufficient to cause an injury to the left arm, rendering it useless. He remained in a hospital under treatment for two months. The company endeavored to prove that the patient was shamming or was under hypnotic influence. The jury rendered a verdict as above after a conference of only twenty minutes.

DR. JOSEPH S. NEFF of Philadelphia, before the Board of Charities and Correction, has offered a resolution "That the attending pathologist of the Philadelphia Hospital be allowed the privilege of utilizing the pathological specimens at that institution to make autopsies for the purposes of instruction." In explanation Dr. Neff suggested that a committee of pathologists be appointed to select specimens for demonstration, and further that the consent of the family first be obtained before a post-mortem is made. Mr. Moore, a member of Council, however, stated that as a guardian of the interests of that institution he was opposed to having the bodies of those patients being used for public pathologic inspection. Action on the resolution was postponed until some future time.

THE OBJECT of Dr. A. H. Doty, health officer of the port of New York, in going to Europe, as noted in the JOURNAL of last week, was to visit Bremen, Hamburg, Rotterdam, St. Petersburg, and other continental cities for the purpose of consulting with the authorities and steamship companies relative to detaining, for observation, Russian and other emigrants, at the port of embarkation. This detention is with a view of preventing the spread of infectious diseases, particularly smallpox and typhus fever, to New York City. Dr. Doty expects to visit Sanarelli before his return, and have a conference with him concerning the treatment of yellow fever by antitoxin serum.

THE NEW State Medical Registration Board for Michigan met at the governor's office, Lansing, October 10, and organized by the election of Dr. Malcolm Sinclair, Grand Rapids, president, and Dr. B. D. Harrison, Sault Ste. Marie, as secretary. The meeting was something of an informal affair, but the twelve members discussed plans of operation. The Board ordered that all registered physicians in the state send a certified copy of their registration and diploma on which it is based to the secretary, forthwith, and at the next meeting, which will be held at Grand Rapids, October 26, the work of weeding out incompetent practitioners will be commenced. The members expect the new law will enable them to protect the people against quacks in the future.

TWO NEW French works have recently appeared, incorporating medicine into fiction. In one the plot turns on the suicide of two unhappy lovers who are given a purgative by the druggist instead of the poison they ask for. The other is the history, under the veil of fiction, of the locally famous row between two professors of the faculty, one of whom, Blanchard, accused the other, Heim, of misappropriating a number of instruments committed to his charge, resulting in the suspension of the latter for two years, on account of his negligence, although acquitted of direct criminality. Blanchard has not yet been able to resume his lectures, as the students made demonstrations in favor of Heim. The latter's term of suspension is about over. The novel, which is entitled "Monsieur le Professeur," seems to have produced rather a revulsion in favor of Blanchard.

ACCORDING to the *Indian Medical Record*, a hospital in Melbourne is devoted to the treatment of diseases of women, the managing committee of which almost entirely consists of women. But when the annual appointments of resident physicians are made, it is said they are not given to women physicians but to young men. The candidates are appointed by ballot, and a young man of good appearance and engaging manners can rely on the votes of the women managers. This is not due to a lack of applicants of the other sex, for "within the past three months three medical women of ability have applied for vacancies in the resident appointments, but in each case a male competitor was chosen instead." These facts, as the *Record* remarks, are significant, but it does not further explain them except to say that they are not encouraging to those of the gentler sex who study medicine in Melbourne. The new woman in whom the normal heterosexual impulse is supposed to be suppressed does not appear to be strongly in evidence in the antipodes.

THE FACT that the Yersin plague serum confers immunity from the start renders it extremely valuable as a preventive measure in epidemics. The period during which this immunity is conferred has not yet been definitely established, but twenty-five days is accepted as the limit. The Haffkine inoculations, on the other hand, immunize for a year, but immunity is not obtained until after an interval of eight to twelve days. Consequently, Calmette advocates combining the two methods in epidemics, either simultaneously or after a brief interval, and if the serum can not be obtained, commence with a very small dose of the Haffkine, following later with the standard dose. The *Kolnische Zeitung*, of October 4, states that his conclusions were signed by the resident and visiting physicians at a meeting at Oporto, before he left for home, endorsing this sug-

gestion and the value of the Yersin serum not only as a preventive measure but also as a curative, as established by clinical observation of fifteen cases treated with it. The only death was that of a patient who was not treated with it until the ninth day of the disease. Calmette's wife visited the plague hospitals and personally presented money and some gift as a souvenir to each patient.

Miscellany.

Inoculating Animals with Rabies.—J. Lebel of Jassy injects the virus directly into the canal of the spinal cord, says *Arch. Orientales*, September. He finds this method much simpler and more convenient than trephining. The rabbit dies the seventh or eighth day, the same as after other methods of inoculating.

Remuneration of Hospital Medical Attendants.—According to *Prog. Med.*, the hospital physician in Paris only receives $360 a year for his services, while in Germany the salary is $1330 in cities of the third rank, and, in large towns like Hamburg it is $2200 for the physician, and $2400 for the surgeon-in-chief, and others $1330. The nurses receive from $60 to $160.

Entozoa in the Uterus.—E. Simon records, in the *Cbl. f. Gyn.* of July 1, a case of catarrhal endometritis with erosion of the cervix and a laceration of the perineum. There was a thick, milky discharge with a peculiar aromatic odor, and two threadworms were found in the depths of the erosion. He considers the latter the cause of the endometritis, and emphasizes the odor *sui generis* of the discharge.

Sunlight on Bacillus Icteroides.—Tests at the La Plata Hygienic Institute have confirmed the fatal action of sunlight on the bacillus dried or diluted with water, according to *Anales de Buenos Ayres*, 3 and 4, but it has been found that anaerobic cultures are very much more resistant, also bacilli in clothing and sand. When exposed to the sun in nutritive media they do not perish but their growth is very much retarded.

Bareggi's Test for Differentiating Tuberculosis From Typhoid Fever.—Twenty to thirty drops of the patient's blood are drawn from the finger tip into a test-tube, and set aside for twenty-four hours. At the end of this time the clot has not retracted and there is very little serum in case of typhoid fever, but the clot retracts and withdraws from the walls, with abundant serum formation, in case of tuberculosis.

Mayor's Hammer in Apparent Death of Neonatorum.—A writer states, in the *Bull. Med.*, August 9, that he has succeeded in reviving over thirty infants apparently dead, by dipping Mayor's hammer in cold water and applying it to the epigastrium, to the chest above and below the breast, twice to ten times. An inspiration usually follows its application for the third or fourth time, and the infant rapidly recovers from its asphyxiated condition.

Physician Fined for Co-operation with a Charlatan.—The French courts recently condemned a female somnambulist for illegal practice of medicine, but she continued her practices, seeking to avoid prosecution by hiring a young physician at 40 cents an hour to be present during her consultations and "confirm her diagnosis," which was frequently made from examination of a lock of hair sent by a non-resident client. She was again arrested and the doctor with her, and they were fined $10 and $3 respectively and costs.

Lavage of Abdominal Cavity Through Vagina.—Raccoviceanu Pitesti has succeeded in removing every trace of peritoneal infection after operation by washing out the abdominal cavity with one to twelve liters of artificial serum introduced through the abdominal wound until the pressure becomes painful, when it is allowed to flow out again; with drainage. He repeats the process twice in the twenty-four hours; some of the twenty-seven patients thus successfully treated required ten to sixteen repetitions of the lavage.—*Revista de Chir.*

Surgical Treatment of Malignant Edema and Pustula of the Lids.—According to *Annali di Ottalmologia*, 34, an incision is made through the skin parallel with the edge of the lid, and the tissues dissected up and down, both flaps lifted and the subcutaneous tissues thoroughly cauterized and packed with gauze moistened with 1 to 2000 formol, renewed once or twice a day. As granulations form, the skin flaps are drawn down into their old place, and nothing is left of the defect except an almost invisible linear scar.

Peppermint is Rough on Rats.—K. M. Mikhailoff (*Pharmazevt. Jour.*, Aug. 25, 1899) has instituted a series of experiments for the extermination of mice without using poisonous substances. His labor was rewarded by the discovery of a peculiar dislike of mice to the odor of peppermint. He placed small pledgets of cotton saturated with peppermint-oil in openings made by the mice, and they did not show up for some time. Later the mice made an attempt to return, but the peppermint-oil was once more used and the mice have not returned since.

Prostatic Troubles Treated by Establishing a Permanent Fistula.—Piollet advocates suprapubic cystotomy and the establishment of a permanent fistula in case of hypertrophied prostate and threatening retention, describing, in the *Gaz. des Hop.*, No. 55, the observation of a patient who has been kept in good health by this means for the last seven years. Whenever the fistula has been allowed to close, violent dysuric accidents appeared at once. A secondary advantage of this method of treatment is the easy extraction of any calculi that may form.

Arthropathy of the Elbows from Fractures of the Skull.—Potel relates in the *Echo Med. du Nord* of September 10, that a lad of 14 fell, evidently fracturing the base of the skull, but recovered completely except that two months later both elbows became painful, for a time preventing the use of his arms. The pains subsided later, but recurred again at intervals. At present, eight years later, the pains still recur at times, and the joints crack, but there is no tumefaction and the young man is normal aside from this symmetric trophic arthropathy.

Trauma and Phthisis.—A. Ewald publishes in the *N. Y. Med. Monatsschrift* for September, two cases in which robust persons in the midst of perfect health, no heredity, 37 and 17 years of age, were injured in the shoulder region by a fall or a falling stone, requiring two weeks in bed. Four weeks after the accident the subjects began to cough and lose strength and flesh, and passed rapidly into chronic pulmonary phthisis with numerous bacilli in the sputa. Desoil also reports, in *Echo Med.* of October 1, two observations of pleurisy developing at once after a fall on the thorax and passing quickly into rapidly fatal phthisis. In these cases both subjects were alcoholics.

Health Reports of Medical Students.—Japan, although the youngest among the civilized nations, has made many valuable innovations which deserve to be emulated by other nations. Here is one instance. All educational institutions in Japan are obliged to send in an official report to the government concerning the health of the students. According to the *Sei i Kwa Medical Journal*, July 30, 1899, there are 1659 students in the universities of Tokyo and Kyoto, their ages from 19 to 33, height 141 to 188 cm.; weight 32 to 75 kilo; circumference of chest 70 to 97 cm.; general health, excellent 603, fair 1043, bad 13; eyesight, normal right 811, normal left 831; myopia right, 845, myopia left 826; impaired hearing 138, etc. We in this country have no means of officially finding out about the health of our students, although the advantages, both prac-

tical and scientific, to be derived from such a system are quite obvious. We suggest that our medical colleges take the initiative in collecting and presenting data concerning the health of their students.

The Nicolopoulos Theory of Sex-Determination.—Our Greek confrère bases his theory on the assumption that the ovaries functionate in turn each month, and that one ovary produces girls and the other boys. He reports that he has been very successful in the application of the theory as many happy households can testify. His method, as described in the *Jour. de Med. de Paris*, October 1, is to consider the first pregnancy as a single menstrual period as it were, and that the ovary on the other side enters on its functions the month after parturition and every alternate month thereafter. Consequently, if a girl is born from the first pregnancy, a boy will be conceived during the month after her birth and during each succeeding alternate month.

Nature of Myocarditis.—Considerable light has been thrown on the nature of this affection, by the results of inoculations of guinea-pigs, rabbits and dogs with diphtheria toxin, by Renaut and his pupils, producing acute or chronic myocarditis according as the dose was large and single or fractional. The cardiac fiber is always first affected—a typical parenchymatous myocarditis. There is no primary participation of the connective tissue in the process of reaction. In the slow, chronic, mixed form, the myocarditis comprehends a widely diffused parenchymatous element and an interstitial element disseminated in islands of sclerosis—unobtrusive islands of cicatricial lesions which do not appear for nearly or more than a year. The lesions and course in man are identical.

Sanitary Matters in Japan.—The *Allg. Wiener Med. Ztg.* states that in Japan the Bureau of Public Health is connected with the Internal Department. The country is divided into seven sanitary districts, and each community has a sanitary council consisting of police officers and two local members of the profession, druggists or veterinarians, who confer with the local officials in all matters affecting the public physical welfare. There are three Government experimental laboratories, open to private individuals for a small remuneration, and botanic gardens, serum institute, etc., and a grand central advisory board consisting of leading officials in the army, navy, universities and cabinet, with twenty experts from the profession, pharmacists or veterinarians.

Local Lavage of Blood.—Parlavecchio suggests a method for introducing antiseptics freely into the tissues without injury, in case of desperate surgical lesions or inoperable parasitic tumors: The member is separated from the general circulation by an Esmarch bandage and ligature. An artery is incised and the antiseptic fluid forced into it, while the surplus fluid flows out again through an incision in a vein near by, after having traversed the entire member. Experiments on the cadaver and on dogs proved entirely successful, except that gangrene followed the introduction of solutions of lactate of silver and sublimate. It is impossible for general intoxication to result. The antiseptic lavage could be followed by pure water, or the member could be wound with an elastic bandage to expel any remaining fluid.—*Policlinico*, February 15.

Decision Against Diploma Mill.—The supreme court of Illinois, on the 16th inst., revoked the charter of the Independent Medical College of Chicago. For information concerning the steps taken to remove from the legally chartered corporations of Illinois this notorious "diploma mill," see the JOURNAL of March 12, 1898, p. 630. After obtaining further proof of the wholesale sale of diplomas by this institution, the attorney-general brought suit in the circuit court of Cook County to have the charter of the "college" revoked. After hearing the evidence, the court, on Feb. 15, 1899, entered a judgment of ouster. The "faculty" of the college made no defense but took an appeal to the supreme court, simply to gain time. (See JOURNAL, October 14, p. 991.) The decree of the circuit court has not apparently interfered with the sale of diplomas. Indeed, the "faculty" has earnestly endeavored to confer as many degrees as possible, and so "lowered the scale of prices" and gave degrees for practice in Michigan, Kansas, Texas and elsewhere, to all who applied and paid. The sale has continued to the present. Early in the month the State Board of Health purchased one in Fort Worth, Texas, for $20. The transaction, however, was arranged in Champaign, Ill., through a licensed physician whom the board has since summoned to appear and show cause why his certificate should not be revoked for unprofessional and dishonorable conduct. (See JOURNAL, October 14, p. 991.) The "physician" in this case, whom the college required to "show evidence of qualifications," was a young law student of whom the sole requirement demanded was a tender of the necessary fee in advance. Recently the "faculty" began to see ahead the "parting of the ways," and in August the institution "became affiliated" with the "Metropolitan Medical College," another "legally chartered medical college," the charter issued by the Secretary of State under the provisions of the Act of 1872. Just what this institution proposes to do is clearly shown in the following extracts from a letter sent out from the headquarters of the dying Independent:

CHICAGO, August, 1899.

Dear Friend:—Graduates of the Independent Medical College and other advanced practitioners will be glad to know that the enemies of that institution have so far failed to break it up. Since 1896 they have assailed it, and by misrepresentation, vituperation and expensive proceedings in court have endeavored to overthrow it. But it still stands and with unabated energy and undiminished success it is prosecuting its work of reform to-day. Instead of regarding as a misfortune the opposition it has met from its foes, it regards it as an evidence that its position as an institution set for the overthrow of medical monopoly, and the granting of liberty to all qualified practitioners to pursue their profession unhindered is right. The more determined the opposition, the more evincing it regards the proof that its work is needed.

But the world moves, and we must not rest satisfied with past achievements. We must be prepared to meet other and greater emergencies. We must lay the foundation for a firmer footing for competent and experienced physicians, and for greater liberty to the people to employ whatever doctor of whatever school they choose.

The Independent and the Metropolitan Medical Colleges each have their distinctive fields of work. There are many young men and women of ability who could not meet the heavy expense of a medical monopoly college course, but according to our method and with the assistance of a preceptor at home could secure a better practical equipment for practice than that possessed by thousands who have graduated from old line schools. The Independent has met and will continue to meet the necessities of that class.

Then again there are thousands of experienced practitioners, who do not so much require more knowledge as they require the authority and privilege to use the knowledge and ability they already possess. They are competent: their work has proved their efficiency and being justly entitled to a standing before the public not second to any class of physicians, it is the work of the Metropolitan Medical College to accomplish this object, and with this end in view it has adopted the highest standard of any medical college in the country.

. . . . . .

Post-graduate courses are now being given practitioners at the Metropolitan Medical College. Full particulars sent on application.

Very truly yours,

JAS. ARMSTRONG.

One can not but admire the naivete with which the alumni of the Independent are importuned to get under the shelter of the Metropolitan. There is little doubt that the Metropolitan will be conducted on the same lines as the Independent. If this be the case, its career will be exceedingly brief. Under the provisions of a statute which became in force July 1, 1899, the attorney-general may file a bill in chancery in the name of the People of the State of Illinois against any corporation authorized to confer degrees, diplomas or other certificate or certificates of qualifications in the science of medicine, pharmacy

or dentistry which conducts a fraudulent business or abuses, misuses or violates the terms of its charter, in any court having jurisdiction of the corporation and subject-matter of such bill, for an injunction to restrain said corporation from conducting its business fraudulent or abusing, misusing or violating the terms of its charter, and also for the dissolution of said corporation, "and thereupon it shall be the duty of the court in which said bill is filed to grant such injunction and to hear and determine the same as in other cases in chancery. And, provided further, that this act shall apply to schools, colleges, or universities which now or may hereafter be licensed in this State, notwithstanding any provisions that may exist in their charters."

The supreme court had no hesitation in saying that it fully justified the finding and judgment of the court below. In fact, it was sufficient to establish the guilt of the defendant, as charged in the information, beyond a reasonable doubt, and would have justified not only the forfeiture of the charter, but the infliction of a fine on the parties guilty of the abuses, therefore the judgment of the circuit court was affirmed.

Old Age and Criminality.—Among the subjects discussed at length at the Eighth International Congress of Criminology, which met at Pesth, September 12, was the influence of old age on criminality. It was stated that Finland and Mexico are the only countries in which the laws recognize old age as mitigating the responsibility of a criminal. "The best indication of the mental degeneracy induced by old age is the gradual extinction of altruistic ideas," one member observed. It was agreed that the evidences of mental disturbances which are frequently noted in advancing age, ought to be regarded in criminal proceedings in determining the responsibility, and resolutions were passed recommending special study of criminal proceedings involving aged persons, with particular reference to age, mentality, etc., and the character of the crime. Uniform legislation in all countries in respect to the "white girl slave trade" was urged, and these congresses bring its realization nearer, although it is slow work. The next Congress will meet at St. Petersburg or Brussels, in 1901.

Washington, D. C.

HEALTH OF THE DISTRICT.—The report of Health Officer Woodward, for the week ended September 30, shows the total number of deaths to have been 115, of which 68 were white and 47 colored. At the close of the week there were 104 cases of diphtheria and 44 of scarlet fever under treatment. During the same period there were 72 births, 40 white and 32 colored.

HOSPITAL FOR FOUNDLINGS.—Dr. Z. T. Sowers, president of the Washington Hospital for Foundlings, has presented his annual report for the work done at the institution during the past year. The report shows that 44 infants remained from last year, and that 31 were received during the present year. Of the 25 deaths which occurred, 19 were under 6 months, while 6 had passed the first year of age. Eighteen adoptions were arranged. The daily average of attendance during the year was 37. An appropriation of $6,000 is asked for from Congress.

CHILDREN'S HOSPITAL.—Dr. J. W. Loyejoy, president of the medical staff, has submitted his annual report of the Hospital for the past year. It shows that 56 children remained from last and 406 were admitted during the present year. In addition, 59 babies were admitted, making a total of 521; 177 were white and 229 were colored. Of the 40 children who died, 12 were white and 28 colored; 2314 cases were treated in the dispensary. 309 surgical operations were performed and 7390 prescriptions compounded. The percentage of deaths, including those from tuberculosis, was 8.65; excluding those from tuberculosis, 4.75; the number dying from tuberculosis being 18. The percentage of deaths in the baby ward was 42.37, and for the entire institution, 12.28.

HOME FOR INCURABLES.—The report of Mrs. Helen D. McLanahan, president of the Washington Home for Incurables, shows the institution to be in a flourishing condition and many improvements have been made in the building. Fifty-seven cases received treatment during the year, 13 new ones were admitted, 13 died, 4 were discharged. The expenses per year range from $12,000 to $13,000, and Congress is asked for an appropriation of $5000 to help defray the expenses of the coming year.

WASHINGTON ASYLUM HOSPITAL.—The report of Dr. D. Percy Hickling, visiting physician of the Washington Asylum, shows that during the past year 4373 patients were treated, of which number 226 died. The attendance this year exceeded that of the previous year by 357. Dr. George R. Sorrell, the resident physician, is highly commended for his excellent service, especially during the outbreak of smallpox in the workhouse wards. He recommends an increase in the size of the Hospital, and requests an appropriation of $50,000 for that purpose; and an additional $15,000 for the erection of a building suitable for the care of contagious diseases. A training school for nurses has been organized under the joint management of the Washington Training School for Nurses, the Central Dispensary and Emergency Hospital and this Hospital, and a modern home, with lecture-rooms for the nurses, has been completed, and a school, second to none, is contemplated.

Queries and Minor Notes.

ZIEMANN'S METHOD.

CAIRO, ILL., Oct. 6, 1899.

To the Editor:—In the JOURNAL of August 19, page 477, you mention a new blood stain. Will you kindly let me know what "Ziemann's" method is?

Yours truly, H. C. R.

ANSWER:—Ziemann's method was first described by him in a work published last year ("Ueber Malaria und andere Blutparasiten," Jena, G. Fischer), but he has also written more recently in regard to it (*Cbl. f. Bact.*, etc., I, vol. xxiv, 945). It appears to consist in the use of a double stain made by combining various proportions of concentrated filtered 1 per cent. methylene blue and eosin solutions. The alkaline methylene blue and the acid eosin are supposed to react and produce a neutral stain which colors the chromatin elements a rich carmine. By the addition of two to four parts of borax to one of the methylene blue in 100 parts distilled water, the reaction is greatly quickened.

The method is based on an earlier published one by Romanowsky, but Ziemann's stain is quicker. Michaelis' method seems to be only a further modification.

ROENTGEN RAYS DATA.

SAN FRANCISCO, CAL., Oct. 11, 1899.

To the Editor:—In the JOURNAL of September 30, p. 873, there is an item on "Roentgen Rays Data Wanted"; can you give me the address of the gentleman wanting the information?

P. M. J.

ANSWER:—The address is Dr. Albers, Schonberg, Hamburg, Esplandade 38. Dr. Albers says: "The material obtained from brief reports sent in by physicians will be arranged and prepared for publication and eventually be incorporated in a report to the next German Congress of Surgery."

The Public Service.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., from September 14 to and including Oct. 5, 1899:

William H. Brooks acting asst.-surgeon, from Washington, D. C., to duty at Fort Hamilton, N. Y.

Joseph H. Carroll, acting asst.-surgeon, from Columbus, Ohio, to Jefferson Barracks, Mo., to accompany the 49th U. S. Vol. Inf. to the Philippine Islands.

Hymen M. Cohen, acting asst.-surgeon, from Fort Winfield Scott, Cal., to duty with troops going to the Philippine Islands.

J. Webb Curtis, acting asst.-surgeon, from Chicago, Ill. to Fort Thomas, Ky., to accompany the 48th U. S. Vol. Inf. to the Philippine Islands.

Benjamin Edgar, Jr., lieutenant and asst.-surgeon, U. S. A., assigned as quartermaster and commissary of subsistence of the Josiah Simpson General Hospital, near Fort Monroe, Va.

Euclid B. Frick, captain and asst. surgeon, U. S. A., member of board in New York City, to examine officers for promotion.

S. M. Gonzalez, acting asst-surgeon, from New York City to Pensacola, Fla., for annulment of contract.

Charles R. Greenleaf, colonel and assistant surgeon-general U. S. A., from San Francisco, Cal., to Manila, P. I., for duty as chief sanitary inspector of the Department of the Pacific.

Lewie A. Griffith, acting asst.-surgeon from Columbia, S. C., to Fort Niagara, N. Y., to accompany the 42d U. S. Vol. Inf. to the Philippine Islands.

James B. Hallwood, acting asst.-surgeon, now at Fort Crook, Neb., to accompany the 39th U. S. Vol. Inf. to the Philippine Islands.

James W. Hart, acting asst.-surgeon, from duty at Fort Hunt, Va., to Fort Washington, Md.

Aubray F. Higgins, acting asst.-surgeon, from Fort Hamilton, N. Y., to Jefferson Barracks, Mo.

William Redin Kirk, acting asst.-surgeon, from the general hospital San Francisco, Cal., to duty with troops going to the Philippine Islands.

Simon P. Kramer, major and surgeon, Vols., from New York City to report to the Surgeon-General at Washington, D. C.

John C. Lewis, acting asst.-surgeon, from Georgetown, Ky., to Camp Meade, Pa., to accompany the 41st U. S. Vol. Inf. to the Philippine Islands.

Thomas Crooke McCleave, acting asst.-surgeon, from San Diego Barracks, Cal., to San Francisco, Cal., for duty with troops going to the Philippine Islands.

James C. Merrill, major and surgeon, U. S. A., from Washington, D. C., to Philadelphia, Pa., to attend the meeting of the Association of Medical Librarians, Oct. 5, 1899.

Arthur W. Morse, acting asst.-surgeon, from Joliet, Ill., to Fort Riley, Kan., to accompany the 40th U. S. Vol. Inf. to the Philippine Islands.

William F. de Niedeman, major and surgeon Vols., from duty in the Department of the Province of Havana and Pinar del Rio, Cuba, to the Department of California.

William O. Owen, captain and asst.-surgeon, U. S. A., from St. Louis, Mo., to duty as sanitary inspector, Department of California.

Elias H. Porter, acting asst.-surgeon, orders from Fort Hancock, N. J., to Fort Crook, Neb., to accompany the 39th U. S. Vol. Inf. were issued and subsequently revoked.

Alfred Richards, acting asst.-surgeon, from Fort Washington, Md., to duty at Fort Hunt, Va.

John A. Ronayne, acting asst.-surgeon, from temporary duty in the general hospital at San Francisco, Cal., to New York City, for annulment of contract.

A. H. Simonton, acting asst.-surgeon, to temporary duty at Fort Thomas, Ky.

W. R. Van Tuyl, acting asst.-surgeon from the general hospital at San Francisco, Cal., to Leavenworth, Kan., for annulment of contract.

August Von Clossman, acting asst.-surgeon, from Jefferson Barracks, Mo., to St. Louis, Mo., as attending surgeon and examiner of recruits in that city.

Isaac P. Ware, captain and asst.-surgeon, U. S. A., wholly retired from service to take effect from September 29, 1899.

Samuel M. Waterhouse, lieutenant and asst.-surgeon, U. S. A., member of a board in New York City, to examine officers for promotion.

Robert N. Winn, acting asst.-surgeon, from New York City to Framingham, Mass., to accompany the 46th U. S. Vol. Inf., to the Philippine Islands.

Movements of Navy Medical Officers.—Changes in the medical corps of the U. S. Navy for the week ending Oct. 13, 1899:

Medical Inspector J. A. Hawks, promoted to medical director.

Surgeon P. A. Lovering, ordered to the Mare Island Navy Yard.

Surgeon D. O. Lewis, detached from the Mare Island Navy Yard and ordered to the *Iowa*.

Surgeon M. H. Simons, detached from the *Iowa* and ordered to Washington, D. C., October 23, for examination for promotion, and then home to wait orders.

Surgeon J. W. Atlee, detached from the *Solace* and resignation accepted.

P. A. Surgeon C. P. Bagg, detached from the *Pensacola* and ordered to the *Solace*.

P. A. Surgeon J. E. Page, ordered to the *Pensacola*.

Asst.-Surgeon W. M. Wheeler, detached from the *Solace* and ordered home to wait orders.

Medical Inspector C. A. Siegfried, detached from the torpedo station, Newport, R. I., Oct. 17, and ordered to continue in charge of the naval hospital, Coasters Harbor Island, R. I.

Surgeon J. M. Steele, ordered to duty at the torpedo station, Newport, R. I., October 17.

Marine-Hospital Changes.—Official List of Changes of Stations and Duties of Commissioned and Non-Commissioned Officers of the U.S. Marine-Hospital Service, for the fourteen days ended Oct. 12, 1899.

Surgeon R. D. Murray, to proceed to Miami, Fla., for special temporary duty.

P. A. Surgeon C. H. Gardner, granted leave of absence for two days.

Asst. Surgeon G. M. Corput, to report to medical officer in command, Baltimore, Md., for duty and assignment to quarters.

Asst.-Surgeon Carroll Fox, relieved from duty at Baltimore, Md., and directed to report to medical officer in command of the Reedy Island Quarantine station for duty and assignment to quarters.

Acting Asst.-Surgeon R. S. Primrose, granted leave of absence for six days.

Hospital Steward Charles Miller, granted leave of absence for 21 days from October 8.

Surgeon R. D. Murray, to proceed to Key West, Fla., for special temporary duty. To assume command of the Service at Key West, Fla., in accordance with orders of May 15, 1899.

Surgeon P. M. Carrington, to proceed to New York City, as inspector of unserviceable property.

P. A. Surgeon T. B. Perry, to report to Chairman, Board of Examiners, New York City, for examination to determine fitness for promotion.

P. A. Surgeon R. M. Woodward, to report to Chairman Board of Examiners, New York City, for examination to determine fitness for promotion.

P. A. Surgeon G. T. Vaughan, to report to Chairman Board of Examiners, New York City, for examination to determine fitness for promotion.

P. A. Surgeon C. P. Wertenbaker, to proceed to Bristol, Tenn., for special temporary duty.

Asst.-Surgeon C. E. Decker, to proceed to San Diego, Cal., and assume command of the Service, relieving Asst.-Surgeon L. E. Cofer.

Asst.-Surgeon J. B. Greene, to report to Chairman, Board of Examiners, New York City, for examination to determine fitness for promotion.

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General of the U. S. Marine-Hospital Service, during the week ended Oct. 14, 1899.

SMALLPOX—UNITED STATES.

Arkansas: Jefferson County, October 4, 20 cases; Pulaski County, October 4, 6 cases.

Kansas: Butler County, October 2, 5 cases.

Massachusetts: Chelsea, September 30 to October 7, 1 case.

Ohio: Cincinnati, September 30 to October 7, 2 cases; Cleveland, September 30 to October 7, 1 case; Dayton, September 30 to October 7, 2 cases.

Pennsylvania: Allegheny, September 30 to October 7, 3 cases.

Tennessee: Memphis, September 30 to October 7, 2 cases.

Virginia: Portsmouth, September 30 to October 7, 2 cases.

Washington: Seattle, September 22 to 30, 1 case.

SMALLPOX—FOREIGN.

Canary Islands: Teneriffe, September 16 to 23, 2 deaths.

Greece: Athens, September 16 to 23, 7 cases, 2 deaths.

India: Bombay, September 5 to 12, 10 cases; Madras, September 2 to 8, 1 death.

Italy: Naples, September 14 to 21, 1 death. Imported from British East Africa.

Mexico: Chihuahua, September 22 to 30, 7 deaths; Mexico, September 10 to 20, 21 cases, 11 deaths; Cuchio, September 29, 25 cases; Mulatto, September 29, 12 cases; Nueva Laredo, July 1 to August 24, 3 deaths; Ojenega, September 29, 50 cases; Pilares, September 29, 15 cases; Progresso, October 7, 30 cases; San Antonio, September 29, 20 cases; San Felipe, October 7, 100 cases; San Francisco, September 29, 5 cases; San Juan, September 29, 100 cases; Juarez, October 7, 40 cases; Vado de Piedras, September 29, 20 cases.

Russia: Moscow, September 8 to 16, 2 cases; Odessa, September 16 to 23, 4 cases; St. Petersburg, September 8 to 16, 1 case.

Straits Settlements: Singapore, August 19 to 26, 3 deaths.

YELLOW FEVER—UNITED STATES.

Florida: Key West, October 6 to 10, 137 cases, 4 deaths.

Louisiana: New Orleans, October 5 to 12, 8 cases, 2 deaths.

YELLOW FEVER—FOREIGN.

Cuba: Matanzas, October 3, 1 case, soldier; Nuevitas, September 10 to 16, 1 case; Santiago, September 16 to 23, 4 cases.

Mexico: Vera Cruz, September 22 to 28, 9 cases, 4 deaths; Victoria, October 6, reported.

Salvador: Vicinity of City of Salvador, reported.

CHOLERA.

India: Calcutta, August 26 to September 2, 4 deaths; Karachi, September 2 to 9, 1 case, 1 death.

PLAGUE.

Egypt: Alexandria, September 17 to 24, 1 death; Lorenzo Marques, Magudo, September 22, reported.

India: Bombay, September 5 to 12, 87 deaths; Calcutta, August 25 to September 2, 54 deaths; Karachi, September 2 to 9, 3 cases, 3 deaths.

CHANGE OF ADDRESS.

Bushang, L. B., from Lyndon to Admire, Kan.
Blake, D. B., from Cuero, Texas to 2102 West End Ave, Nashville, Tenn.
Cannaday, C. G., from 112½ Jefferson St. to Cannaday Bldg, Roanoke, Virginia.
Cwil, J. L., from 318 S. 3d St. to 6823 Manchester Ave, St. Louis, Mo.
Corbin, D. R., from Idalia to Bernie, Mo.
Caldwell, J. J., from 1138 to 808 N. Fulton St., Baltimore, Md.
Caldwell, N. S., from Yokahoma, Japan to Care Hongkong and Shanghai Bank, Hongkong, China.
Crume, G. P., from New York City to Earl Park, Ind.
Cassidy, W. W., from Wabasha, Minn. to 740 Jackson Boul., Chicago.
Currie, A. N., from Currie, Minn. to Hatton, N. D.
Dowdall, W. T., from 2140 Wabash to 7100 So. Chicago Ave, Chicago.
Finney, J. M. T., from 923 N. Charles St. to 1300 Eutaw Pl., Baltimore, Md.
Fitz, G. G., from Emmetsburg to West Bend, Iowa.
Foss, John W., from Boston, Mass. to Misa, Arizona.
Grimstead, J. T., from 602 W. 4th St., St. Louis, Mo. to Wabash Hospt., Springfield, Ill.
Grier, M. J., from Waukegan, Ill. to 1531 Spruce St., Philadelphia, Pa.
Horton, G. M., from Box 355 to Bailey Bldg, Seattle, Wash.
Hopper, J. H., from Mackville to Kirkville, Ky.
Hirschman, L. J., from 85 Adelaide St. to Harper Hospt., Detroit, Mich.
Harper, M. L., from Milo, Iowa to Boulder, Col.
Keck, F. C., from Crocker Bldg to 508 California St., San Francisco, Cal.
Kirkbridge, M. F., from Spring Lake Beach, N. J. to 2212 Green St., Philadelphia, Pa.
Krebs, L. L., from DesMoines, Iowa to Springfield, Mo.
Kendall, O. J., from Witchita Falls, Texas to Evans Blk, Riverside Cal.
Lindquest, A. B., from 131 S. 39th St. to Omaha Medical College, Omaha, Neb.
Lanver, A. E., from Paton to Harcourt, Iowa.
Mahon, J. B., from Wilkes Barre to Main St., Pittston, Pa.
Murdock, O. N., from 23 So. Washington St. to 620½ Nicolette Ave, Minneapolis, Minn.
Martin, E. E., from Gambrie, Iowa to 248 S. Lincoln St., Chicago.
Nelson, H. S., from 239 1st Ave. So. to 54 3d St. So., Minneapolis, Minn.
Osborne, C. F., from Creamery, Iowa to 222 Winchester Ave, Chicago.
Osborn, J. W., from Dyersville, Iowa to 2016 Arch St., Philadelphia, Pa.
Peterson, H. B., from Weavers Corners to Kelly's Island, Ohio.
Perry, H. G., from Greenville to Greensboro, Ala.
Prentice, G. L., from Pleasantville, Iowa 528 Washington Boul., Chicago.
Parsons, S. T., from Breda, Iowa to 580 W. Madison St., Chicago.
Ramsey, A., from Chestnut Levee to Burkeville, Va.
Riche, H. G., from Marksville to Cheneyville, La.
Suggett, O. L., from 613 Pine St. to Jefferson Ave. and Olive St., St. Louis, Mo.
Scholtes, T. W., from Winona, Minn. to 740 Jackson Boul., Chicago.
Weld, W. H., from Fort Atkinson to 200 Farwell Ave, Milwaukee, Wis.
Wedemeyer, G. A., from Burton to Gay Hill, Texas.
Werner, C. A., from Marathon to Harcourt, Iowa.
Waiss, A. S., from 2722 Indiana to 2691 N. Hermitage St., Chicago.
Woolsey, M. H., from 1017 Sutler to 135 Geary St., San Francisco, Cal.
Wyman, Hugh S., from Juneau, Alaska to Olympia, Wash.